

971  
MASS/AMHERST

\*



6 0365 4659 5

DEPART

Government DL

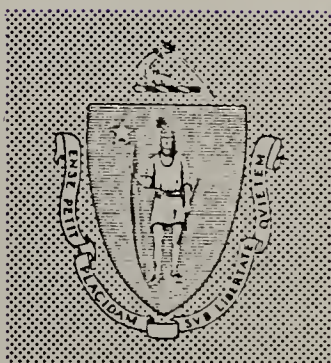
Collection

MAR 16 1972



MA SS.

EA 1.1: 971



**MASSACHUSETTS  
DEPARTMENT OF  
NATURAL RESOURCES  
ANNUAL REPORT  
FISCAL 1971**

**ARTHUR W. BROWNELL,  
COMMISSIONER**





## CONTENTS

Conservation Services  
Forests and Parks  
Law Enforcement  
Marine Fisheries  
Mineral Resources  
Water Pollution Control  
Water Resources  
Acquisition  
Planning  
Public Access Board



ANNUAL REPORT

DIVISION OF CONSERVATION SERVICES

GEORGE R. SPRAGUE, DIRECTOR

FISCAL 1971



## CONTENTS

	Page
INTRODUCTION.....	1-2
PERSONNEL.....	3-5
CONSERVATION COMMISSIONS.....	6-11
STATE COMMITTEE FOR CONSERVATION OF SOIL, WATER AND RELATED RESOURCES.....	12-14
BUREAU OF OUTDOOR RECREATION COORDINATION.....	15-19
OFFICE OF RESOURCE REVIEW.....	20-26



## INTRODUCTION

When the Division of Conservation Services was first created by the Legislature in 1963, the staff consisted of a Director, two staff members and two secretaries. There were only two major programs under the jurisdiction of the Division at that time which involved liaison with the Massachusetts Conservation Districts and the approximately 150 local Conservation Commissions.

In the 1971 Fiscal Year, there were fourteen full-time men and five secretaries in the Boston Office, plus five field representatives in various parts of the state. The passage of the four wetlands statutes during the 1960's has resulted in a shift of emphasis in the Division's responsibilities, so that more than 75% of the total man hours were spent on the enforcement and administration of the wetlands laws during 1971. It would appear that this trend is likely to continue as the public demand for wetland protection increases.

The Division has attempted to adjust to this change in emphasis. However, the increased public interest in wetlands protection has created a tremendous burden, and the eleven men assigned to this area are sometimes hard put to keep up with the telephone calls, meetings and hearings which are generated by the wetlands laws. In general, however, the staff has responded magnificently to the rapidly increasing workload and the service rendered to the public during the 1971 fiscal year reached new heights of quality and quantity.





It is to be hoped that the Division of Conservation Services will continue its role as a major protector of the state's environment, and that through our efforts, the Commonwealth of Massachusetts will maintain its leadership in the environmental field.



## PERSONNEL

There were several major changes in the structure and make-up of the Division during fiscal 1971. The most significant structural change involved the transfer of the Planning Section from the Division and its placement within a new Planning Group in the Administrative Division. Mr. Evans Hawes, who for several years had been associated with the Division and who had served as Acting Director in the Director's absence, was also transferred to the Commissioner's staff.

As noted in the last Annual Report, Mr. Hans Van Leer retired as of June 30, 1970. His duties as liaison man to the Conservation Districts were assumed by Mr. John D. Fiske, who is also assigned to service the 296 Conservation Commissions.

In July, 1970, Mrs. Helen F. Blades was transferred to the Division of Mineral Resources. Her position as Principal Clerk was taken by Miss Kathleen M. Coyne, who we were delighted to welcome back after a brief sojourn with another Division. Mrs. Blades' cheerful competence has been missed after so many years with the Division.

Other clerical staff changes involved the resignation of Miss Marilyn Piretti and the appointment of Mrs. Sharon Atkins and Miss Virginia Freitas. Mrs. Atkins is a Senior Clerk Stenographer and Miss Freitas is a Junior Clerk Typist.

The Legislature authorized four new positions in the 1971 budget, all of them in the wetlands programs. We have been most



fortunate to obtain the services of the following men, whose competence and dedication has given new vigor to our task of wetlands protection.

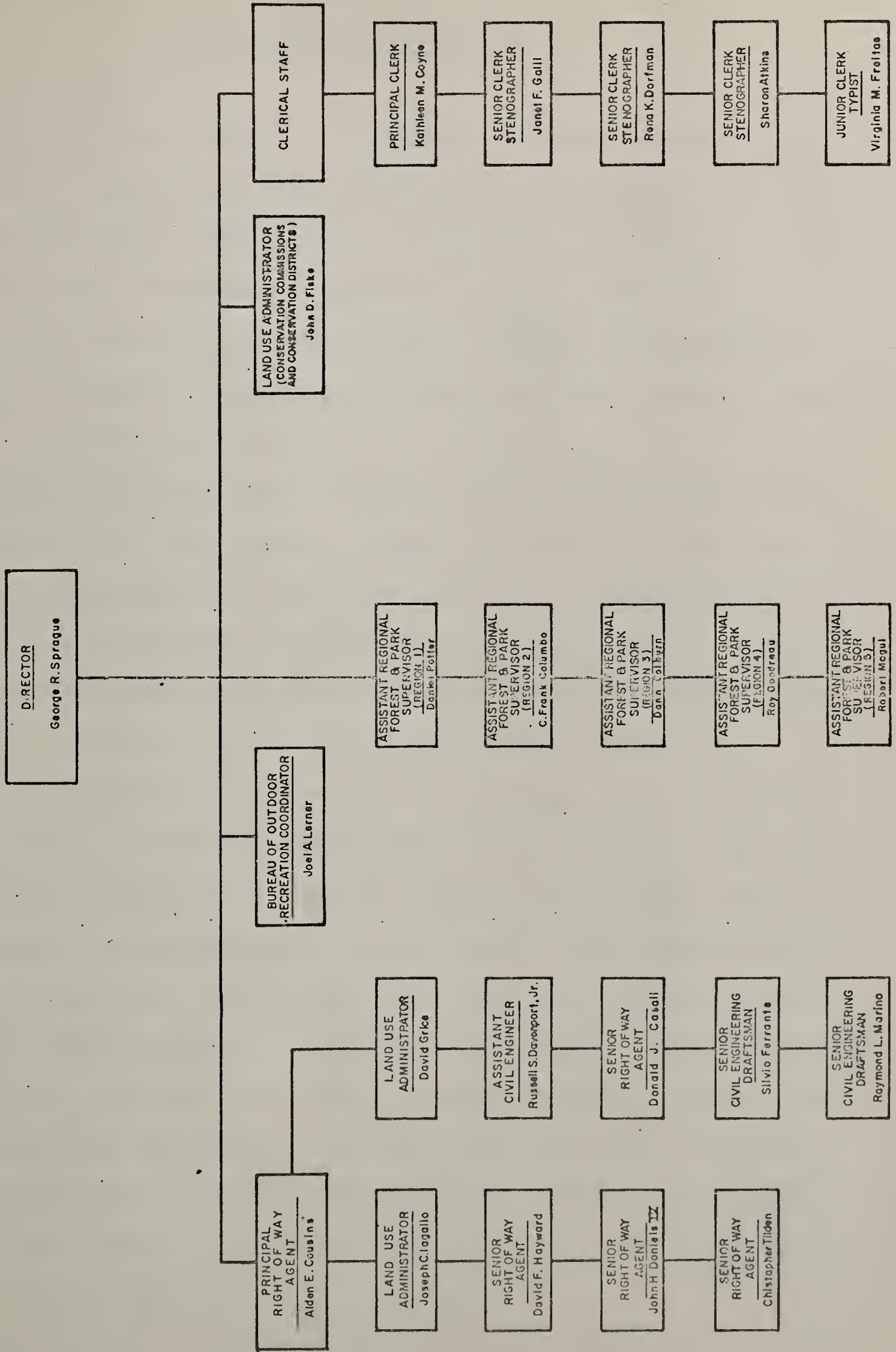
<u>Name</u>	<u>Title</u>	<u>Date of Appointment</u>
Silvio Ferrante	Senior Civil Engineering Draftsman	October, 1970
Raymond Marino	Senior Civil Engineering Draftsman	February, 1971
Christopher Tilden	Senior Right-of-Way Agent	February, 1971
Russell Davenport	Assistant Civil Engineer	March, 1971

The organization of the Division of Conservation Services is set forth in the following chart.



( G.L. c.21 s.18 )

# DEPARTMENT OF NATURAL RESOURCES









## CONSERVATION COMMISSIONS

During the past year, the heightening public concern over environmental problems has been reflected in stepped-up activity by local conservation commissions. The number of communities with duly established conservation commissions rose to 296 out of the 351 cities and towns in the Commonwealth. Among the communities which formed commissions during the past year were Waltham, Orange, Merrimac, Princeton and Rutland.

Despite the inflationary rise in land costs and real estate taxes, commissions have generally been successful at town meetings in winning the support of their communities in appropriating monies for open space acquisition. To satisfy this Department's planning requirement, 14 commissions submitted open space recreation plans during the past year. With acceptance of these plans by the Department of Natural Resources, the total number of communities which qualify for Self-Help reimbursement rose to 100. Many of the open space plans were contained within overall town master plans prepared by professional planners while other commissions, lacking such service, volunteered their own time and efforts in preparing acceptable plans. Among the commissions submitting their own plans were Sherborn, Fitchburg, Spencer, Belmont, Methuen, Pembroke, Winchester and Paxton. The Town of Paxton also received planning assistance from the Worcester County Natural Resources Technical Team under the auspices of the Northwestern Worcester Conservation District.



## SELF-HELP PROGRAM

The Self-Help Program continued at a high level of activity during fiscal 1971. From July 1, 1970 to June 30, 1971, a total of 92 preliminary Self-Help applications were submitted to this Department for preliminary approval. By the end of June, 66 projects had received preliminary approval. The total funds encumbered for these projects out of the fiscal 1971 budget was \$748,232.47. Due to the exhaustion of funds, six projects received the approval of the Board of Natural Resources during June pending receipt of new monies in July for fiscal year 1972. The total reimbursement for those projects will be \$136,263.00.

During the past year, actual reimbursement was made on 63 projects. This reimbursement totalled \$628,244.28. With completion of these 63 projects, 1,851.64 acres of open space lands have been added to the 8,651 acres already acquired by commissions under the Self-Help Program.

The following list summarizes the disbursement of Self-Help reimbursement monies since the inception of the program in 1961:

<u>Fiscal Year</u>	<u>Projects Paid</u>	<u>No. of Acres</u>	<u>State Reimbursement</u>
1961	-	-	\$ -
1962	2	107	6,650.00
1963	10	169	21,983.00
1964	3	223	10,367.00
1965	25	388	79,377.00
1966	18	282	83,750.00
1967	32	1262	328,212.00
1968	69	2620	590,035.00
1969	64	1620	880,587.00
1970	46	1980	606,654.00
1971	<u>63</u>	<u>1852</u>	<u>628,244.00</u>
TOTALS	332	10,503	\$3,235,859.00



## SELF-HELP PROGRAM (continued)

A completed review of the Self-Help files which was conducted during June revealed that the 10,503 acres acquired under the Self-Help Program is comprised of the following land and water types:

<u>Upland</u>	6,646.45 acres
<u>Inland Wetlands</u>	3,175.52 acres
<u>Coastal Wetlands</u>	334.14 acres
<u>Water Surface (ponds, rivers)</u>	346.86 acres

## CONSERVATION RESTRICTION ACT

With the enactment of Chapter 666 (The Conservation Restriction Act), the Land Use Administrator assigned to administering the Self-Help Program and coordinating the activities of conservation districts became responsible for reviewing and processing conservation restrictions prior to their being approved by the Commissioner. During fiscal 1971, fifteen restrictions were submitted to the Department for review. A total of 675 acres of land were involved in these easements which were granted to towns or charitable conservation organizations. With one exception, the purpose of these restrictions has been to protect wetlands or other watershed lands. The towns or organizations which have attached approved conservation restrictions are as follows:

Duxbury	Hingham	Topsfield
Eastham	Marblehead	Wayland
Easton	Sharon	Yarmouth

Lincoln Conservation Land Trust  
Essex County Greenbelt Association





## CONSERVATION RESTRICTION ACT (continued)

The field reviews of these restriction sites were conducted by the assistant regional forest and park supervisors of the Division of Forests and Parks

### CONSERVATION COMMISSION ACTIVITIES

During the past fiscal year, many communities were successful in completing their first Self-Help open space acquisitions. The following is a sampling of the types of projects being undertaken by commissions throughout the Commonwealth.

Kingston - In 1970, the Conservation Commission submitted to this Department the Town's comprehensive Master Plan. By the end of the year, the Commission had been successful in taking a first step in implementing the recommendations set forth in the conservation-recreation section of the plan. With their first acquisition, the Commission gained 22 acres of the proposed Smelt Brook Conservation Area. This conservation area will protect important watershed lands as well as providing the public with an area for picnicking, fishing and nature study.

Peabody - With its first two Self-Help projects, the City took constructive action in setting aside areas for conservation and recreation. With these acquisitions, the City has protected over 17 acres of lowlands, including a 7 acre pond which is utilized by the public during the winter for skating and hockey. The Commission hopes to continue to acquire adjoining properties as part of the proposed Norris Brook Valley Conservation Area. The total cost of the acquired parcels was \$6,750 for which the City received \$23,375 in reimbursement from the Department of Natural Resources.





## CONSERVATION COMMISSION ACTIVITIES (continued)

Gloucester - The professional Master Plan which was completed for the City of Gloucester in 1970 recommended the immediate acquisition of Lanes Cove in order to ensure its continued public use as a marine basin for commercial and sport fishermen. The Conservation Commission easily won wide local support in acquiring this natural salt water cove for public boating, fishing, picnicking and scenic enjoyment. The merit of this project gained the support of the H.U.D. open space program from which the City received 50% reimbursement of the total project cost of \$75,000. The Department of Natural Resources reimbursed the City another 25% of the project cost or \$18,750.

Worcester - The threatened drainage of a 41 acre man-made pond for building purposes caused the City to purchase the pond and adjoining property for open space and recreational purposes. With purchase of this area, known as Patches Pond, the Commission and the City prevented further undesirable urban sprawl and guaranteed the future public use of the area for water based recreation such as fishing, boating and skating. With improvement, the upland adjoining the pond will provide picnic and nature study sites. This project received the approval of the H.U.D. open space program for which the City received 50% reimbursement of the total project cost of \$284,243.50. The state Self-Help Program reimbursed the City an additional \$71,061.

Holden - The first Self-Help project undertaken by the Town of Holden was one of the largest single open space acquisitions completed by a conservation commission since the inception of the



CONSERVATION COMMISSION ACTIVITIES (continued)

program in 1961. The project, which has been designated as the Trout Brook Conservation Area, involved the purchase of 636 acres of watershed land. Recognizing its future water needs as suggested by its professional planners, the Town acquired the entire area as a possible water impoundment site in the distant future. The area will be immediately used by the public for hunting, fishing, hiking, and scouting.



THE STATE COMMITTEE FOR CONSERVATION OF  
SOIL, WATER AND RELATED RESOURCES

The fifteen Massachusetts Conservation Districts and the State Committee have continued to dedicatingly give their time and effort in promoting conservation projects throughout the Commonwealth. The districts have maintained their assistance to land owners as well as responding to constantly increasing requests for cooperation by various governmental units such as towns, regions and state and federal agencies. The districts have commendably met their increasing responsibilities while working under handicap of non-increasing state assistance monies.

During the past year, district activities have reflected a growing cooperative working relationship between the districts and local conservation commissions. The districts continue to coordinate the activities of technical teams in the preparation of natural resource inventories as requested by commissions as well as assisting commissions with special projects.

An exemplary project of the past year was the outdoor classroom project of the Tyngsboro Conservation Commission as assisted by the Middlesex Conservation District and the Soil Conservation Service. Through the planning and technical assistance of the District and S.C.S., the Commission completed an outdoor classroom adjacent to the Town's new Junior-Senior High School. Construction and improvements included an observation tower, walkways, study benches and picnic tables, wood duck boxes, and a small pond for aquatic study and





THE STATE COMMITTEE FOR CONSERVATION OF SOIL, WATER AND RELATED  
RESOURCES (continued)

skating. The project was financed by town funds and a special project appropriation of \$1,121.00 by the State Committee.

The Buck Hill Conservation Education Center in Spencer as sponsored by the three Worcester Districts is a crowning example of how districts working cooperatively with state and federal agencies can achieve a monumental conservation project. With the assistance of the Worcester County 4-H Center, Inc., which supplied most of the land, the State Department of Natural Resources, the State Department of Education, the Worcester County Extension Service, the University of Massachusetts and the Department of Agriculture, 75 acres of land has been developed into a model conservation education center. The site has been extensively used on a multi-purpose basis covering soil conservation practices, forestry practices, wildlife demonstrations, nature study and recreation.

The Barnstable District received \$937.26 in special project money for the Attaquin Park Nature Center in Mashpee. With this assistance, the Town built a foot bridge across wetlands of the Mashpee River near the flume of Mashpee Lake and a trail leading directly to the Indian Museum on Route 130. The nature study site has become a main scenic attraction in the Town of Mashpee.

The Middlesex Conservation District received \$600.00 in special project money to purchase a plastic liner to be placed on the bottom of the duck pond of the Massachusetts Audubon Society at Drumlin Farm. This pond was constructed in 1968 under cost sharing funding allotted by the State Committee. The liner was installed in hopes of eliminating the problem of seasonal low water levels in the pond.





THE STATE COMMITTEE FOR CONSERVATION OF SOIL, WATER AND RELATED  
RESOURCES (continued)

With an additional allotment of \$1,200.00 by the State Committee, the Berkshire District continued work on the Mt. Everett Regional School special project. A 1,200 foot nature study trail has been constructed and a site cleared for a wildlife pond that will be constructed at the Nature Study Center.

The State Committee held its four regular meetings during the past year. At the January meeting, the Committee elected George S. Hartley as Chairman, replacing Linwood B. Lesure; and Albert Torrey as Secretary, replacing George S. Hartley. During the spring of 1971, the Massachusetts Association of Conservation Commissions appointed Robert Ellis to the Committee to replace Jules Sussman.

The following lists some of the action taken by the Committee during the past year:

1. Approval of administrative allotments to districts totalling \$33,456.00.
2. Approval of six special project allotments totalling \$6,537.26.
3. After a hearing and considerable debate at several Committee meetings, the petition to establish a separate district for Suffolk County was indefinitely postponed. This action was based on the fact that present budget monies would not support the administration of an additional district, and that requests for assistance from Suffolk County could be adequately serviced by either Norfolk or Essex Districts.
4. Preparation of the format for the new Supervisors Handbook to be printed in fiscal 1972.



BUREAU OF OUTDOOR RECREATION COORDINATION

The most significant statewide development in the new Morton era at the Department of the Interior has been the decentralization of administration of the Land and Water Conservation Fund. The entire responsibility for grant-in-aid project review and approval has been transferred to the regional Philadelphia office. The Washington Bureau has reserved the review and approval right on statewide comprehensive planning projects and requests for assistance from the Contingency Reserve of the Fund.

This decentralization effort will serve to speed application processing time by eliminating the need for application review and approval in the Washington office.

The Administration's pending 1972 fiscal year budget request includes \$280 million for the Land and Water Conservation Fund. This represents some 91 millions of dollars more than last year's budget allotment. Should the President's budget be approved, Massachusetts would realize an increase of four million dollars more than last year's apportionment.

The apportionments from the inception of the program to date were as follows:

<u>Fiscal Year</u>	<u>Amount</u>	<u>Allocated and/or Spent</u>
1965	\$ 233,710.00 final	\$ 233,710.00
1966	\$ 1,866,117.90 final	\$1,866,117.90
1967	\$ 1,255,474.96 final	\$1,255,474.96
1968	\$ 1,409,083.20 final	\$1,409,083.20
1969	\$ 1,035,473.00 final	\$1,035,473.00
1970	\$ 1,405,284.00 final	\$1,405,284.00
1971	\$ 6,615,342.00	\$1,480,362.00
Total	\$13,820,485.06	\$8,685,505.06



BUREAU OF OUTDOOR RECREATION COORDINATION (continued)

Total federal reimbursements paid to the Commonwealth and its municipalities in fiscal 1971 was \$1,514,468.69.

During the 1971 fiscal year, ten additional applications have been approved by the Bureau of Outdoor Recreation. Cities and towns accounted for six applications, the Department of Public Works one, and the Department of Natural Resources three. The ten applications submitted during Fiscal 1971 were as follows:

<u>Agency</u>	<u>Type of Project</u>	<u>Total Cost</u>	<u>Federal Reimbursement</u>
City of Salem	Swimming pool development	\$ 400,000	\$200,000
City of Springfield	Greenleaf Park development	\$ 70,000	\$ 35,000
City of Pittsfield	Onota Lake Acquisition	\$ 275,000	\$137,500
Town of Littleton	220 acre Oak Hill Acquisition	\$ 66,000	\$ 33,000
Town of Canton	33 acre Draper Estate Acquisition	\$ 260,000	\$130,000
Dept. of Public Works	Scusset Beach Development	\$1,068,600	\$534,300
Dept. of Natural Resources	Boston Harbor Island Study	\$ 155,500	\$ 77,750
Dept. of Natural Resources	Horseneck Beach Development	\$ 611,000	\$305,500
Town of Carlisle	72 acre Foss Farm Acquisition	\$ 100,624	\$ 50,312
Dept. of Natural Resources	1800 acre Acushnet Cedar Swamp Acquisition	\$ 350,000	\$175,000

OUT-OF-STATE VISITORS COUNT

The out-of-state visitor's recreation area use count of 196,864 completed in calender year 1969 was audited by the Bureau of Outdoor Recreation and approved as an accepted segment for the Land and





## OUT-OF-STATE VISITORS COUNT (continued)

Water Conservation Fund for fiscal year 1971.

The count, taken on 8 selected days, at any or all non-federal public outdoor recreation areas is used by the Bureau in its formula for apportioning Land and Water Conservation Fund monies to the states, including Massachusetts.

## GOLDEN EAGLE PASSPORTS

The Golden Eagle Passport program, which for a \$10 fee, allows a carload of people admission to designated federal recreation areas was finally extended by law through 1971; but, with stipulations that the Department of the Interior come up with recommendations for a new fee system.

While the status of pending changes is uncertain, the United States Department of the Interior has proposed that each member of a family, young children excluded, be charged \$4.00 for an annual permit and that each night's stay in a recreation area cost \$3.00 to \$4.00 per car.

Interior estimates an annual income to the fund of some 25 millions of dollars. This would represent a sizeable increase in income to the fund which heretofore has been disappointingly low.

## MASSACHUSETTS GUIDELINES

The second edition of the Massachusetts Guidelines for Participation in the Federal Land and Water Conservation Fund Program rolled off the presses in January, 1971. The 48 page booklet provides a program summary and definition, presents a step-by-step procedure for filing an application, and provides an appendix of sample application forms, and other legal documents and the like.





## CONFERENCES AND MEETINGS

In August, the Bureau of Outdoor Recreation Coordinator represented the Commissioner at the annual conference of the National Association of State Liaison Officers at the TAN-TAR-A Lodge in Lake of the Ozarks, Missouri.

In December, the Northeast Regional State Liaison Officers met at the Holiday Inn in Boston for two days to discuss regional Land and Water Conservation Fund problems. Although the meeting was scheduled to be held in Vermont, it was later changed to Boston. Both Vermont and Massachusetts State Liaison Officer staffs coordinated the conference.

On October 20th and on April 23rd, the Bureau of Outdoor Recreation Coordinator served as a panelist on the United Community Services Action in Recreation Workshop in Boston and as a workshop panelist at the National Recreation and Parks Association regional conference in Newport, Rhode Island.

## CONNECTICUT RIVER NATIONAL CULTURAL PARK CITIZENS ADVISORY COMMITTEE

Of the 18 evening meetings attended by the Bureau of Outdoor Recreation Coordinator referred to above, seven of these were meetings of the Citizens Advisory Committee in Amherst relative to the proposed Mount Holyoke Unit of the proposed Connecticut River National Cultural Park.

As a result of close coordination and cooperation with the Committee, the National Park Service has completed a master plan for the Mount Holyoke Unit and the rest of the proposed National Park. The recommendations of the Committee necessitated that the National Park Service create a new park designation. Instead of being called



CONNECTICUT RIVER NATIONAL CULTURAL PARK - CITIZENS ADVISORY  
COMMITTEE (continued)

the Connecticut River National Recreation Area, it will be called the Connecticut River National Cultural Park.

Legislation for the creation of the Mount Holyoke Unit has been filed in the United States Senate.



OFFICE OF RESOURCE REVIEW

(WETLANDS PROTECTION)

The Office of Resource Review is best characterized by its beehive atmosphere. The constant ring of the telephone, the scheduled meetings and appointments with groups and individuals, the queries of people who walk in off the street looking for information regarding ecology and the preservation of wetlands, the in field on-site determinations, and the answering of numerous letters that come into the office each day. This part of the Division covers a wide gamut of public service and a typical day might be described as follows:

A concerned citizen calls to complain about someone filling a swamp or marsh.

A contractor calls and wants to know why this office is holding up his permit to initiate construction.

A chairman and members of a local conservation commission arrive for an appointment to discuss problems related to the building of a new regional school or housing development.

A landowner calls about digging a duck pond on his property and wants to know if the Hatch Act applies.

A title insurance company calls and asks for a letter of certification on a completed project before it will insure the structure on the property.

A frustrated homeowner calls to complain about water being diverted onto his property by a neighbor or nearby housing development.





## OFFICE OF RESOURCE REVIEW (continued)

A landowner calls to object to a conservation restriction that this office has placed on his property.

A landowner calls and wants an on-site determination, with stakes, marking the edge of the wetland.

A company engineer arrives, with plans, for an extension of a permit.

The Office of Resource Review coordinates the complex process, maintains the necessary correspondence, and controls the issuance of applications under G.L. c.131 §40 (the Hatch Act) and c.130 §27A (the Jones Act). This part of the Division prepares the data necessary for the implementation of restrictive orders under G.L. c.130 §105 (Coastal Wetlands Act) and G.L. c.131 §40A (the Inland Wetlands Act).

### THE HATCH ACT (G.L. c.131 §40)

The Hatch Act continues to comprise the largest portion of our work load. Projects subject to the Act varied in size from the installation of one 18 inch culvert to a 400 acre industrial site with complex flood control structures. A total of 307 applications were received from private owners and 47 municipal filings for a total of 354.

### THE JONES ACT (G.L. c.130 §27A)

Although the number of Hatch Act applications increased by 15% during fiscal 1971, the Jones Act applications seem to be remaining at a reasonably steady level. During the past year, 113 Jones Act applications were received. In towns where hearings have been held under G.L. c.130 §105, the number of Jones Act applications have dropped significantly.





## INVESTIGATIONS

During the past fiscal year, the number of wetlands complaints which required investigations by the Division of Law Enforcement totalled 403. The Division also referred 15 violations to the Attorney General's Office for legal action.

## SOLID WASTE DISPOSAL

In April, 1971, the State Department of Public Health adopted new rules and regulations relative to the operation of sanitary landfill areas. Included in these regulations are rather stringent restrictions on dump operations in wetlands. All disposal sites in wetlands will now be reviewed by the Division of Conservation Services in cooperation with the Department of Public Health. It is anticipated that many of these dumps will have to be relocated to upland areas in order to satisfy the new Regulations.

## THE COASTAL WETLANDS PROTECTIVE ACT (G.L. c.130 §105)

Substantial progress was made during the fiscal year on the implementation of the Coastal Wetlands Act. Having finished the North Shore area between Salisbury and Cape Ann during the previous year, attention was directed southward. After two hearings on the South Shore (Duxbury and Marshfield), our efforts to restrict the coastal marshes, flats and beaches of Cape Cod began in earnest. Starting in the Town of Wellfleet and moving westward, hearings were conducted in Eastham, Chatham and Orleans. It is estimated that all Cape Cod hearings will have been completed by the time of our next Annual Report.

An effort has been made to work more closely with each community and this has been reflected in recent hearings. Initial contact is



THE COASTAL WETLANDS PROTECTIVE ACT (G.L. c.130 §105) (continued)

made with the selectmen before any mapping is done to introduce ourselves and answer any preliminary questions. The proposed areas are then transferred to Assessor's sheets and the owners of record are notified by registered mail. A map of the proposed area and a copy of the proposed order are left with the selectmen and a meeting is arranged with them, before the hearing, to answer any questions which they may have regarding the Department's proposal.

As of June 30, 1971, the status of the Coastal Wetlands Program is as follows:

Restrictions Recorded

1.	Ipswich	3,500 acres
2.	Quincy	137 acres
3.	Pembroke (2 hearings)	145 acres
4.	Wareham	77 acres
5.	Marshfield	633 acres
6.	Norwell	460 acres
7.	Hanover	13 acres
8.	Newburyport	635 acres
9.	Essex	2,200 acres
10.	Westport	1,150 acres
11.	Rowley	2,100 acres
12.	Salisbury	2,400 acres
13.	Newbury	4,650 acres
14.	Wareham	450 acres

TOTAL 18,550 acres

Hearings Held, Restrictions Pending

1.	Scituate	486 acres
2.	Gloucester	1,100 acres
3.	Marion	400 acres
4.	Duxbury	4,260 acres
5.	Marshfield	2,170 acres
6.	Wellfleet	1,920 acres
7.	Eastham	3,710 acres
8.	Orleans	3,975 acres
9.	Chatham	6,595 acres

TOTAL 24,616 acres





THE COASTAL WETLANDS PROTECTIVE ACT (G.L. c.130 §105) (continued)

Thus, under the program, a total of twenty-four (24) hearings have been held involving a grand total of 43,166 acres of coastal marsh, beach and tidal flats. The six hearings held in Fiscal 1971 involved a total of 3,242 separate property owners, each of whom received a certified letter informing him of the hearing. Addressing and processing over three thousand certified envelopes was a tremendous task which was efficiently handled by our secretarial staff.

THE INLAND WETLANDS PROTECTIVE ACT (G.L. c.131 §40A)

Near the close of the last fiscal year, a contract was negotiated to undertake the delineating of inland wetlands from aerial photographs covering 300 square miles in eastern Massachusetts. Because recent stereo photography at the proper scale was available for the eastern, two thirds of the Charles River Watershed and the entire Neponset River Basin, this section was chosen for the initial implementation of the Inland Wetlands Protective Act.

The pilot project was completed and the aerial photo prints returned with wetlands delineated in January, 1971. The contract provided line drawings on mylar of each of the wetland areas to serve as instruments for recording the restrictions with the Registry of Deeds. The photographs with the outline of swamps and marshes delineated were also projected and adjusted to the assessors maps of the cities and towns located in the two watersheds. This latter process enabled the identification of the individual lots and parcels included in the wetlands so that the landowners involved could be determined from local assessor's records.





THE INLAND WETLANDS PROTECTIVE ACT (G.L. c.131 §40A) (continued)

From the 1300 photos required for stereo coverage of this area, 385 significant prints with wetland delineation were chosen and negative transparencies made so that copies for field use and restriction indices would be readily available.

At the same time, the U.S. Soil Conservation Service under a Type IV program for the Massachusetts Division of Water Resources agreed to a wetland soils map of each of the townships within the pilot area. This furnished a separate outline of wetland areas that could be compared with the image derived by interpretation of the aerial photographs. Any significant discrepancies between the two methods could be resolved by field examination and the soils information also provided useful back-up data in considering all aspects of protective restriction.

Wellesley was chosen as the initial community for proposing wetland restrictions under Chapter 131, Section 40A. The delineation and mapping revealed 15 wetland areas totalling 144 acres remaining in the township, much of which was municipally owned as water, forest or park land.

Each of the wetland sites were visited, and a brief summary compiled indicating general hydrology, ownership and amount of development or encroachment observed. Notices were sent out and the public hearing was held on January 14, 1971. The hearing was well attended and a consensus indicated a favorable response to the proposed restrictions.

The Order of Restriction signed by the Commissioner of Natural Resources on July 1, 1971 and included all of the wetland sites in



Wellesley except area number 1 (Fuller Brook Swamp) which had been proposed to be used for the disposal of incenerator residue. A technical team has been set up to work with Wellesley officials in arriving at a suitable resolution of this problem.

The second Inland Wetlands hearing was held in Dover on April 29, 1971. The proposed restrictions for Dover involved some 50 swamp or marsh areas totalling 661 acres. Following the public hearing, appointments were made with local landowners to answer questions concerning the exact area of involvement and the usages permitted under the Act. When these discussions have been completed and as much agreement as seems possible has been reached, the Order of Restriction will be presented to the Board of Selectmen, the Commissioner and the Board of Natural Resources for their respective approvals. If all approvals are obtained, the instrument is then recorded in the Registry of Deeds.

At the close of the fiscal year, work was underway in preparing for wetland restrictions in the Town of Sherborn. This involved 65 wetland areas totalling 1,307 acres and the public hearing is tentatively scheduled for early September, 1971.

The mapping of wetlands, the notification of landowners, the scheduling of hearings and the due process involved in implementing the Inland Wetlands Protective Act is a slow and laborious process. But our efforts have been well received and it appears that the necessary protection of our essential inland wetland resources can proceed although faster progress would be desirable.



A N N U A L   R E P O R T

D I V I S I O N   O F   F O R E S T S   A N D   P A R K S

F I S C A L   Y E A R   1 9 7 1





### A Complex Year:

The Division of Forests and Parks, during 1971, found itself involved in an increasing variety of problems, which demanded dedication and flexibility to resolve. However, the rewards were satisfying in our management of 240,000 acres of Department lands and 2.8 million acres of private and other public forest land.

Highlights of the Division's activities are submitted in detail by the various Bureaus. In addition, there were many projects, which touched on all Bureaus, but were more Division oriented.

### Personnel Training Program Begins:

During the winter months, an in-service training program was initiated to provide training for year-round personnel of the Division. A training team made up of field personnel and coordinated by Chief Hood, has developed a continuing program to make our people more knowledgeable of department activities and opportunities for up-grading themselves through a course program associated with state and community schools and colleges.

This past winter, a series of six day-long orientation meetings were held. All personnel of the office and field were required to attend.

The program will continue with emphasis now on specific programs and problem areas.

The Division is one of only two state agencies to develop such a program.

### Department Exhibits A Success:

Commissioner Arthur W. Brownell directed Director Gullion to coordinate the development of departmental exhibits at the Sportsmen's Show in Boston and the Annual Flower Show at Suffolk Downs. The joint effort of the planning section, representatives of every Division created exceptionally professional exhibits at both shows. Our intent was to educate. At least from comments of the public attending the exhibits, we were successful.





### Champion Trees:

A champion tree program was inaugurated by the Division this spring to bring citizen attention to the value of trees. Through the American Forestry Association, a program of national champions has been in operation for many years. Massachusetts can boast two champions in an American Beech and a Striped Maple. It is hoped that, even though we may not develop many national champions, we shall have an excellent listing of state champions. It is known that focusing attention on individual trees makes people more cognizant of the particular tree and, therefore, trees in general. So far, the response has been gratifying, but no new champions, yet.

### New Beach A Boom:

During the year, a new beach was constructed at Lake Cochituate State Park. It is evident that it is a success already as season passes bought at Cochituate have doubled. Attendance figures indicated that use is just a little less than attendance at the Hopkinton State Park. The old pool has been filled in and seeded, which is now used for sunbathing and games. The construction cost was only \$69,000 for 900 feet of exceptional beautiful beach.

### Milford Swimming Pool Dedicated:

During early fiscal 1971, the Milford Pool was opened for public use, bringing the number of pools operated by the Division to seven. In conjunction with the pools, a learn-to-swim program for children was started. Over 2,500 children were given instruction. The program has become so popular that parents and other adults have requested an adult learn-to-swim program. This program will be stepped up this coming year.

We are firmly convinced that it may have a direct bearing on the reduction of vandalism at these facilities. We are emphasizing that the pool is theirs to enjoy not to destroy. It seems to be having positive results, so far.

### Division Soars With S.O.A.R.:

The Division, cooperating with the Old Colony Boy Scout Council, housed 425 boy scouts in October and 4,000 boy scouts in June at the Wompatuck State Park in the Hingham area. The trail and fire break work accomplished was monumental, but of greater significance was the opportunity



to work closely with young boys and to educate them in the value of state lands set aside for their enjoyment.

Their interest is so great that individual troops return on weekends to continue work on projects. The Division has recognized their contribution by erecting trail signs, which indicate that a particular Troop has done the work with respect to a certain portion of a trail or fire break.

#### Solutions Needed For Vandalism:

During this year, we collected data on the damage to our lands and facilities, which came to an astounding \$500,000 in one year alone! It is equivalent to the cost of constructing one swimming or camping area. It appears that vandalism is on the increase. We recognize that it is not peculiar to our agency, but more a social problem of national importance.

We do believe that a variety of approaches can be taken that may help to reduce the incidents and type of vandalism.

Below are some of the approaches, which have a chance of helping reduce the problem.

1. Design facilities to be as vandal proof as possible.
2. Develop public relations programs with residents adjacent to state facilities.
3. Create children oriented programs on state lands to make them understand the value of the facilities to them and their parents.
4. Establish law enforcement officers in the Division of Law Enforcement, who will be assigned year-round to enforcement problems, on Division of Forests and Parks lands.
5. Re-establish enforcement capabilities of Division personnel.

#### Historic Restoration - A First:

The Division's Dighton Rock was one of four historic sites in Massachusetts approved by the U. S. Department of the Interior to receive funds for historic rehabilitation.

The project will entail housing of the sandstone rock in a tastefully designed building with temperature and humidity control.

The surface of the rock, which has had many things carved on it over hundreds of years, is beginning to deteriorate, due to severe weather conditions.





P E R S O N N E L

Owen Hess replaced Daniel Perrin, who was acting District Fire Warden in District 10, Hampshire County. Owen Hess was a Springfield fireman for many years.

Donald Stoddard replaced Francis McInerney, as Fire Warden in District 6, Northern Middlesex County. Donald Stoddard was a Supervisor at Willard Brook State Forest.

District Fire Warden John Harvey in Norfolk County, has accepted an assignment as District Supervisor of Rinks and Pools in the Bureau of Recreation. Donald Candlen, Senior Patrolman, in Norfolk County, is acting as District Fire Warden.

David Gallant has been appointed Patrolman in Plymouth County replacing Clifton Rogers, who resigned to work for the U. S. Forest Service.

Robert Telless was appointed Patrolman in Norfolk County to replace Henry Botelho, who resigned.

Robert Smith - General Supervisor of Rinks and Pools.

Bob has been acting in a dual capacity in the rink and pool and the ocean beaches operations. This appointment will enable him to concentrate full time on expanding rink and pool programs.

Kenton Beaujean - General Supervisor of Public Beaches.

Ken returns to the Boston office after several years as a forester, in Essex County. The first week of his new duties was highlighted by an all night vigil at Salisbury Beach on May 30, 1971, with water shortage problems caused by sand in the main line.

John Harvey - District Supervisor of Rinks and Pools.

John is the former District Fire Warden in Norfolk County. He is making his debut in the recreation field.

Napoleon Alarie - District Supervisor of Rinks and Pools

Nap has been Assistant Manager at the Worcester Rink, since its opening. He has a broad knowledge of rink problems, primarily those relating to maintenance.





The full staffing of these positions has resulted in a better distribution of the recreational work load and operation.

Russell Balch Retires:

A retirement party for Russell Balch, Forest and Park Supervisor at Bradley Palmer State Park was held at DiBurro's Restaurant in Haverhill, on December 4, 1970. About 80 of Russ's friends and associates attended. This retirement, after 32 years of service leaves an area which has been highlighted by Russ's excellent work. He will be a difficult man to replace.

Personnel Move Upward

Two changes in Forester personnel occurred during the year. In December 1970, Charles Dane, forester for Western Franklin County, took over as Acting Regional Supervisor in Region #3, Worcester County. A second change involved Kenton Beaujean going into the Boston office in May 1971 in charge of Beaches under the Bureau of Recreation.

Old Time Forester Dies

Guy W. Lucas, a graduate of Harvard Forestry School, who came to work in 1915 in the Moth Division and shortly after organized the shipping of the Massachusetts State Foresters Sawmill Unit #1 to England during World War I, died July 17, 1970. He had worked in many forestry capacities with this Department until his retirement a few years ago.



BUREAU OF FIRE CONTROL

HOWARD E. HURLEY - CHIEF

The Best Fire Record Yet:

June 30, 1971, ended another outstanding year. It was the best season in the last quarter of a century. There was only one fire that burned over 300 acres during the entire year. This fire, which burned 300 acres in the Plymouth area, was brought under control in the early evening and caused no further trouble.

In the last six months there were two fires, which caused considerable concern; the fire in Plymouth, where eight men were burned, and the other in the town of Millville, where a high tension right-of-way- was involved.

The good fire record was due to two factors; periodic rainfalls and alertness on the part of the state and the local fire departments. During the month of August, which ordinarily would be a dry month, the state received from four to eight inches of rain. The amount of rain that falls during the months of August and September generally determine the fire season, that we will have in the fall. The heavy rainfall resulted in practically no fires of any size during the entire fall. All districts had nearly two inches of rain in September and in October they received from 1.96 inches to over 4 inches. Rainfall for the year is shown in appendix 1.

Prevention Is Worth It:

The fire personnel were in a position this year to devote more time to prevention, presuppression and assisting other bureaus with work projects and study resolves.

Bureau personnel conducted fire prevention programs with over 46,000 school children. Each District Fire Warden now has a "Smokey the Bear" costume. After thirteen years of existence, "Smokey the Bear" is still a great attraction, especially among the children.

The demand for fire preventions in schools has increased greatly for the past few years. Prevention materials are also in greater demand and especially from the larger cities and towns in suburban Boston. More "Smokey the Bear" prevention materials were obtained from the Forest Service, but we are still unable to satisfy all requests.





### Presuppression Programs A Must:

With the assistance of equipment obtained from the Excess Property Program, many forest and tower roads were repaired. The Mt. Tekoa project in Russell and Montgomery and the Bearsden projects in Athol were expanded this year in order to give greater protection to these hazardous areas.

Because of the new construction on Route #2, in Templeton in order to give the Templeton State Forest good protection, it was necessary to rebuild an old road, which is being done by the fire personnel.

### New Towers And Trucks Replace The Old:

During the year, fire towers were replaced and renovated in the following locations:

#### 1. North Attleboro:

The new tower was completed and placed into operation in May. The tower was dedicated in the presence of 150 fire officials and others by Commissioner Arthur Brownell and Director Bruce Gullion. This project was greatly appreciated by the fire people in that section of the state.

#### 2. Chelmsford:

A new cabin was placed on the Chelmsford tower. This new cabin is of modern construction and a big improvement over the former cabin.

#### 3. Mt. Washington:

The contract was awarded for the construction of the Mt. Washington tower. This tower will be completed by mid-summer of 1972.

Twelve wooden bridges which were build by the C.C.C. in 1933 on the Leominster State Forest were replaced with culverts. The culverts were received from the Excess Property Program. The wooden bridges at the Douglas State Forest and two at the Spencer State Forest, which were also built by the C.C.C. were replaced. The timber used was cut from the Spencer Forest. Another bridge on the Sutton Forest was also replaced.

#### 4. Lenox:

A contract was awarded and work has begun to replace the Hutchinson tower, which blew down in a violent wind storm two years ago.

#### 5. Truck Replacement:

The twelve 1964 four wheel drive pick-ups were traded for twelve two-wheel-drives. It was the opinion that two-wheel-drive trucks would be satisfactory, since all the fire trucks are four-wheel-drive and could be used for other than fire work, if necessary, whereas, the pick-ups travel mostly on good roads, as they are used as auxiliary fire equipment. Three county patrol trucks were also replaced. The 1964's are now the oldest patrol trucks and these will be traded in 1972. A new chassis was purchased for the construction crew at Brimfield.





Emphasis Is On Training:

Considerable emphasis was placed in training the fire personnel and the state forest crews, this past year. In most districts, one day a week was set aside for equipment check and training. Because of lack of funds, the Bureau was unable to send trainees to the Northeastern Forest Fire Protection Compact training session this year. Some of the men went at their own expense. We hope that funds will be available to continue this training in future years.

A new Forest Fire Fighters Manual was distributed this year to the state and local fire officials. The manual was the result of seven years of work in Pennsylvania. The United States Forest Service improved on it, so the terms and instructions would apply to any state. This manual can be used in a classroom or in the field. Each District Fire Warden, local Fire Warden, local Fire Chief will receive one of these manuals. The rest will be kept to be used by instructors in classroom study.

Weather Stations Firmly Established:

The Bureau now operates a forest fire weather station in each district, but a new Forest Service Experimental Station has been placed in operation at the Goshen State Forest. Our personnel operate this station and forward the information to the U. S. Weather Bureau.

Personnel are Jacks-Of-All Trades:

Many of the fire personnel assisted in the River Study, Trail Study and Open Space Project. Also, the men assisted in cutting out many of the snow-mobile trails. Considerable assistance was given on many other recreational projects, when the fire danger was low.

Law and Fire:

Seventy-two individuals were checked for violation of the fire permit law. In all cases, the offenders were told to put out the fire and given a warning slip. In another case, several individuals were summoned into court and found guilty. There were two violations of the slash law. In both instances, the violations were corrected.



FIRES (SIZE)

BY DISTRICTS

JULY 1, 1970 to JUNE 30, 1971

<u>DISTRICT</u>	<u>COUNTY</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>TOTAL</u>
1	Barnstable	256	40	2	-	-	298
2	Plymouth	380	161	11	1	-	553
3	Bristol	340	238	2	-	-	580
4	Norfolk	197	130	9	1	-	337
5	Essex	9	67	5	-	-	81
6	Upper Middlesex	252	230	3	-	-	485
7	Lower Worcester	61	169	11	1	-	242
8	Upper Worcester	228	138	3	-	-	369
9	Franklin	122	37	-	-	-	159
10	Hampshire	73	103	2	-	-	178
11	Hampden	-	78	3	-	-	81
12	Berkshire	23	30	-	-	-	53
14	Lower Middlesex	168	139	1	-	-	308

---

TOTALS:	2,109	1,560	52	3		3,724
---------	-------	-------	----	---	--	-------

fire is 0 to .25 acres

fire is .26 to 10 acres

fire is 11 to 100 acres

fire is 101 to 300 acres

fire is 301 to 1000 acres



ACREAGE BY DISTRICTS

JULY 1, 1970 to JUNE 30, 1971

A	B	C	D	E	TOTALS
47.50	54.05	35.00	-	-	136.55
94.75	207.25	282.00	165.00	-	749.00
82.40	307.00	60.00	-	-	449.40
42.40	268.30	223.00	175.00	-	708.70
2.25	96.75	110.00	-	-	209.00
63.00	306.25	54.00	-	-	423.25
15.25	275.50	215.00	110.00	-	615.75
34.65	213.75	36.00	-	-	284.40
13.15	59.25	-	-	-	72.40
18.25	97.25	29.00	-	-	144.50
-	177.75	130.50	-	-	308.25
5.75	60.25	-	-	-	66.00
42.80	174.50	15.00	-	-	232.30
<hr/>					
462.15	2,297.85	1,189.50	450.00	-	4,399.50





SUMMARY BY CAUSES

JULY 1, 1970 to JUNE 30, 1971

<u>CT</u>	<u>Campers</u>	<u>Smokers</u>	<u>Debris</u>	<u>Incend</u>	<u>Misc.</u>	<u>Lightning</u>	<u>R.R.</u>	<u>Children</u>	<u>TOTAL</u>
4	32	20	33	91	-	-	118	298	
5	44	75	70	113	2	-	244	553	
3	46	153	21	132	-	31	194	580	
7	9	18	94	12	-	2	195	337	
16	5	3	6	29	-	-	22	81	
5	8	59	40	95	-	24	254	485	
2	5	40	99	3	-	26	67	242	
6	26	99	63	50	-	44	81	369	
2	13	25	5	4	22	78	10	159	
3	16	28	61	18	14	37	1	178	
20	1	7	1	23	-	1	28	81	
3	4	4	1	10	1	5	25	53	
2	34	29	120	36	3	57	27	308	
78	243	560	614	616	42	305	1,266	3,724	



ACRES BURNED (TYPE OF AREA)

JULY 1, 1970 to JUNE 30, 1971

DISTRICT	1	2	3	4	5	6	7	8	9	10	11	12	14	
COM. FOREST	-	408.75	59.95	292.30	26.25	30.50	495.75	2.00	33.85	41.50	83.00	24.75	3.75	1,502.35
NON-COM. FOREST	96.25	275.50	221.60	150.70	90.50	376.25	4.00	225.75	38.55	95.50	175.00	38.50	220.30	2,008.40
NON-FOREST	40.30	64.25	153.10	265.70	81.75	14.25	116.00	41.00	-	3.75	50.25	2.75	.25	833.35
NONFORESTED WATERSHED	-	.50	14.75	-	10.50	2.25	-	15.65	-	3.75	-	-	8.00	55.40
TOTALS	136.55	749.00	449.40	708.70	209.00	423.25	615.75	284.40	72.40	144.50	308.25	66.00	232.30	4,399.50



ACREAGE BY CAUSES

JULY 1, 1970 to JUNE 30, 1971

<u>RS</u>	<u>Smokers</u>	<u>Debris</u>	<u>Incend</u>	<u>Misc.</u>	<u>Lightning</u>	<u>R.R.</u>	<u>Children</u>	<u>TOTAL</u>
	150.55	368.25	1,250.80	738.55	46.35	202.30	1,400.30	4,399.50

NO. OF FIRES BY RESPONSIBILITY

JULY 1, 1970 to JUNE 30, 1971

<u>ber Opr.</u>	<u>Recreation</u>	<u>Other</u>	<u>R.R.</u>	<u>Landowner or Occ.</u>
--	16	-	305	489

DAMAGE OF LAND USE BY ACRES

JULY 1, 1970 to JUNE 30, 1971

<u>iber</u>	<u>ducts</u>	<u>Watershed</u>	<u>Recreation</u>	<u>Wildlife</u>	<u>Real Property</u>	<u>Personal Property</u>	<u>TOTAL</u>
3.00	-	-	5,295.00	203.00	-	5,833.00	

NO. OF FIRES (TYPE OF AREA)

JULY 1, 1971 to JUNE 30, 1971

<u>Forest</u>	<u>Non-Com. Forest</u>	<u>Non-Forested Watershed</u>	<u>Non-Forest</u>	<u>TOTAL</u>
520	2,288	56	860	3,724





APPENDIX I

RAINFALL BY DISTRICTS

CT	<u>1970</u>				<u>1971</u>		
	JULY	AUGUST	SEPT	OCT	APRIL	MAY	JUNE
1	1.53	6.67	1.54	4.50	2.62	4.46	.36
2	1.54	6.37	1.49	4.67	3.43	6.32	.55
3	1.18	5.82	1.78	4.38	2.96	4.54	.54
4	1.33	3.49	1.62	4.20	1.47	3.49	.84
5	1.58	3.96	2.61	3.70	1.25	5.64	2.48
6	1.27	4.03	2.65	3.22	.69	3.62	3.60
7	1.40	5.77	2.16	1.96	.73	4.46	2.91
8	.96	1.62	2.27	2.90	.79	2.91	3.88
9	1.33	4.37	2.13	2.15	.06	3.94	2.81
10	.93	5.08	2.95	3.64	1.09	5.09	4.86
11	1.71	3.50	2.80	2.18	.77	2.97	1.55
12	1.40	3.71	3.41	2.85	3.76	6.42	2.50
13	1.89	7.31	2.95	3.17	.98	3.84	2.42



APPENDIX II

SUMMARY OF FIRES

BY DISTRICTS

JULY 1, 1970 to JUNE 30, 1971

<u>DISTRICT</u>	<u>NO. FIRES</u>	<u>ACRES</u>	<u>COST</u>
1	298	136.55	\$ 11,189.36
2	553	749.00	10,946.00
3	580	449.40	10,139.00
4	337	708.70	17,673.59
5	81	209.00	1,666.00
6	485	423.25	10,427.31
7	242	615.75	11,972.50
8	369	284.40	9,968.65
9	159	72.40	8,206.50
10	178	144.50	5,999.70
11	81	308.25	3,233.50
12	53	66.00	2,282.75
14	308	232.30	6,511.00
TOTALS	3,724	4,399.50	\$ 110,215.86



BUREAU OF RECREATION

GILBERT A. BLISS, CHIEF OF RECREATION

DAVID L. HALL, ASSISTANT CHIEF OF RECREATION

ROBERT F. SMITH, GENERAL SUPERVISOR OF RINKS AND POOLS

KENTON A. BEAUJEAN, GENERAL SUPERVISOR OF PUBLIC BEACHES

This past year has been one of attention to details pertaining to both current operational problems and future needs. Emphasis on public outdoor recreational needs has grown. The public demand for state action in a variety of forms has resulted in a busy, but fruitful year.

Major Resolve Studies Completed:

After months of preparation, two major resolve studies were completed and filed with the legislature on December 23, 1971.

The field study relative to a system of Wild, Scenic and Recreational Rivers was supervised by Lendrum Lee, Forester for Hampden County.

Recommendations for establishment of a Wild, Scenic and Recreational River System was made and legislation was filed with the study to implement this.

The field study relative to a system of Recreational Trails within the Commonwealth was supervised by Charles Dane, former Forester in Franklin County.

Recommendations relative to the establishment of a State-Wide Trails System being established and coordinated by the Public Access Board have been made. A recommendation relative to studying in detail the problem of landowner liability has also been made.

The joint legislative Committee on Natural Resources and Agriculture held hearings on House 4930 pertaining to a Recreational Trails System and House 4931 concerning a Wild, Scenic and Recreational Streams System, on February 24, 1971. A number of supporting statements were read into the record by several interested organizations.

State Forests And Parks:

Attendance Increases Point To Serious Problems:

Use of all recreational facilities continues to grow. This year has witnessed substantial attendance increases in all types of use.





Year-round activity now characterizes nearly all of our areas. Deficiencies in physical plant, which formerly were less apparent, are becoming alarmingly glaring. The quality span of recreational facilities offered the general public truly does range from the disgraceful to the elaborate. Much work is needed to upgrade many areas, which function as important recreational outlets.

#### Trail Scene Builds:

This year saw major emphasis on recreational trails for a variety of users and in a variety of locations.

Contact has been made with landowners along the Appalachian Trail relative to implementing the authority for it's protection as provided in Chapter 627 of the Acts of 1969. Forest Supervisor Douglas Lyman has been conducting most of this field work. Final details of the acquisition of various portions of the trail were discussed with the Appalachian Trail Conference at a November meeting.

The Massachusetts Trails Advisory Committee is becoming a valuable asset in regard to all facets of trail activity. Regular meetings were held monthly during the winter and spring culminating in a tour of the Northfield Pump Storage Project in June. Representatives of all trail user interests are represented in the fifteen member group. William Gearin, of Spencer, is the chairman for the current year.

#### S.O.A.R. Program Conducted at Wompatuck:

On Saturday, June 5, 1971, over 4,000 boy scouts representing the entire Old Colony Council conducted a work project. This was done as part of a weekend camporee held at Wompatuck State Park. The work project consisted of the initial steps in placing on the ground a trail system.



This system was the first, planned and established trail system designed to minimize user conflicts. Three types of trails were built; namely foot, bridal and recreational vehicle trails.

This project was conducted as part of the national 1971 scouting program, S.O.A.R., devoted to conservation activities. Although, the trail system was not complete, a major part of the placement was done and we have every indication that the planned system will function properly.

#### Cross State Trail Ride:

The first of what may eventually be a more commonplace event, took place from August 6, 1970 to August 20, 1970. A cross-state trail ride was co-sponsored by the Massachusetts Horseman's Council and this Department. The point of origin was in Hancock and the final destination was at Myles Standish State Forest, on August 20, 1970. Thirty-nine riders made the entire trip. About eighty rode on the final day to Myles Standish. Director Gullion saw the group off, in Hancock. Chief of Recreation, Gilbert Bliss, spent Saturday evening (August 15) with the group in Spencer, and also was present as the ride finished.

The ride was successful in focusing attention on the need for more long distance, multiple-use trails, in Massachusetts.

#### Wachusett Mountain Ski Area, Enjoying Good Season:

Early, lasting snow and good attendance have resulted in a successful season at the Wachusett Mountain Ski Area.

A new concept of making snow without the need for large amounts of compressed air was demonstrated at the area on February 11, 1971. The demonstration was conducted by the Hedco Corporation. The major advantage of this new approach is the elimination of large and costly air compressors, which are normally powered by diesel fuel or electricity. In Wachusett's case diesel fuel is used.

This new approach is very promising and although still in it's infancy, may well eventually provide a means of low cost snowmaking for all areas including the many small rope tow facilities sprinkled liberally throughout Massachusetts. The application could be a revolutionary step for sub-marginal ski areas.

Some problems on the west lift at Wachusett have developed. This problem which is not completely diagnosed has resulted in some shutdown





time and operation with a reduced number of T bars in use. Engineering studies are being conducted to determine a solution which must be implemented this next summer.

#### HANDICAPPED USE OF RECREATION AREAS:

David Hall, Assistant Chief of Recreation represented the D.N.R. at a meeting on March 18, 1971, pertaining to an AD-HOC Committee established by Governor Sargent on the use of state recreational facilities by the handicapped. Mr. Frank Robinson of Northeastern University is chairman of the Committee and various individuals from the U.C.S., Easter Seal Society, M.D.C. and D.N.R., plus two physically handicapped persons served as members.

Discussion pertained to representatives from M.D.C. and D.N.R. explaining that there are numerous state recreation areas now suited for use by handicapped and all future facilities will be so designed. A major drawback at the present time seems to be the comfort stations. The older facilities are not ramped for wheel chairs and the toilet stalls are not large enough.

Also, it was felt that recreation areas presently suitable for the handicapped should be so identified in brochures and signs at the entrances with the National Handicap Symbol being used.

Visits to various state facilities by the two physically handicapped members are planned for the near future in the hope that state officials can correct problems only these people can point out.

An experimental campsite for use by the handicapped is being considered for trial at Massasoit State Park, in cooperation with this committee.

#### Skating Rinks And Swimming Pools:

Staffing in the Boston Office for the growing rinks and pools program was accomplished this past year with the appointment of Robert Smith to the position of Supervisor of Rinks and Pools and John Harvey and Nap Alaire to the positions of District Supervisor of Rinks and Pools.

Business at the established skating rinks showed a steady growth during the past year. Brockton business was up 23%, Springfield 25% and Worcester an amazing 53%. Attendance kept pace as Brockton set a new attendance record with 192,124 people using the facility.

More and more High School and College programs sought use of the State Skating Rinks this past year. In Worcester, this resulted in the weekly excitement of sell-out games complete with radio and T.V. coverage.





Attendance was also good (as high as 800) for High School and Amateur games in Greenfield where many people were getting their first taste of the sport of ice hockey.

All five rinks were represented in the second annual Department of Natural Resources Youth Hockey Tournament held April 10 and 11 at the Worcester Rink. The host rink produced the champions in both divisions as their Hudson Pee Wees defeated Van Horn of Springfield in the finals, while the Hudson Bantams defeated Randolph, which represented Brockton.

New construction is underway at rink sites in New Bedford, Peabody and Haverhill; while Marlboro and Taunton are ready for bidding. Awaiting their turn are seven additional rinks and ten swimming pools.

Besides their regular business, several of the rinks and all of the pools did a little extra for the Communities in which they are located. The pools provide an invaluable Community service with their daily "learn to swim" program which is free to those who want it. At the Brockton and Worcester Rinks, time was set aside for the use of Special Children. Physical Education classes of the nearby High Schools made use of the Greenfield Rink and the Westfield Pool. The North Adams Rink started their season by playing host to an amateur ice show as part of their areas annual fall festival.

A regulation calling for the mandatory use of helmets during hockey games and practices for all patrons was enforced at all D.N.R. rinks this past year and the public's acceptance of this sensible regulation was gratifying.

#### Ocean Beaches:

The management of ocean beaches, which was assigned to us as a result of legislative action, has become a severe test of our ability to provide quality recreational experiences to large numbers of people in relatively concentrated areas. The four ocean beach areas are plagued by various problems involving physical plant, personnel and administrative matters. We certainly, at this point, cannot relate any outstanding success stories. We can, however, show some basic improvements and plans, which should bear substantial future benefits. As is true of all problems, an opportunity side does exist to provide outstanding recreation for Massachusetts citizens and visitors. We feel we are on the right track.

Some features of the past fiscal year follow:



Salisbury Beach State Reservation:

The whole Division management program at Salisbury was reviewed in detail by Director Gullion, Chief of Recreation, Gilbert Bliss, Supervisor of Beaches, Robert Smith and Regional Supervisor, Robert Hebb, on July 7, 1970. There are many problems both with the physical plant and the management and performance of personnel at this area.

Problems in the sewage ejector system, at the Salisbury Beach Campground, necessitated the limiting use to a 200 ~~maximum~~ of the 500 sites normally in service. This situation continued until August 5, 1970, when the replacement parts were finally received and installed.

During this period, a chronic problem involving long term camping was dealt with. The parties involved finally left the reservation after considerable argument. It is hoped that this initial confrontation will result in an absence of this problem in future years.

Chief of Recreation, Gilbert Bliss attended a meeting with the Salisbury Board of Selectmen on March 15, 1971, relative to plans for police protection during the coming season.

The State Police are planning to discontinue operation of their seasonal barracks at Salisbury Beach and have requested the cooperation of this Department in establishing some limited operations out of our Salisbury Headquarters.

The firm of Alozo B. Reed, Inc., was retained to study various physical problems at this area. Improvement to the camping area comfort station, water service and hot water system was done in May of this year. Major improvement work is slated for the fall of 1971.

Scusset Beach State Reservation:

Meetings were held with Corps of Engineers personnel, Engineering Consultant Andrew Christo, and the Department of Public Works relative to preparations for a three stage development plan for establishment of a camping area at Scusset Beach. Also, to be included are maintenance headquarters and a contact station. Cost sharing has been approved from Federal Land and Water Conservation Fund sources. It is planned to initiate this work in the fall of 1971.

Ice damage along the Cape Cod Canal was severe this past winter. The fishing pier at Scusset was partially closed, due to destruction by ice of a three pile cluster on the west end of the structure. A contract was awarded to repair this damage.

Negotiations have been conducted with the Corps of Engineers relative



to formulating a 25 year lease for recreational and natural resource management of the Scusset area.

Horseneck Beach State Reservation:

A camping area is being designed for construction in the summer and fall of 1971. This camping area will be located on a portion of the third parking lot, which is only used on peak capacity days.

The use of Gooseberry Neck for overnight camping has been discontinued after numerous encounters with the people who had been using the area. A parking area on the north end of the Island is maintained to allow passive use of this unique area.







BEACHES

AREA	PARKING	WALK- INS	SEASON PASSES	CAMPSTIES & CABINS	BATH- HOUSE	CON- SESSIONS	BASKETS	COIN LOCKS	MISC.	TOTALS
Willsbury	39500.00		5760.00	76674.00	69.75	10360.00		391.30	389.38	133144.43
Port Phoenix	3211.00	431.00	2400.00		12.00	630.00			95.14	6779.14
Port Phoenix	112375.00	32.50	8740.00		871.00	20586.00		1109.99	131.13	143845.62
Port Phoenix	17622.00		1180.00		112.25	1000.00		242.10		20156.35
TOTALS	172708.00	463.50	18080.00	76674.00	1065.00	32576.00		1743.39	615.65	303925.54



SKATING RINKS & POOLS

RINKS

AREA	CHIL- DREN	ADULTS	CHIL- DREN	RECEIPTS	WALK INS	LOCK- ERS	SKATE CONC.	FOOD CONC.	MISC.	GROUP	SPEC.	TOTALS
E.W.&H.												
Brockton	3388.25	10608.75	15214.50	95182.65		524.92	778.65	3727.25		54.00	3935.57	133414.54
Greenfield	1831.75	5514.75	4441.50	37600.00	192.00	339.40	241.20	1186.58	105.14	300.00	2452.99	54205.31
North Adams	645.25	5048.25	5297.00	9350.00	69.00	275.80	719.24	640.76		152.00	245.75	22443.05
Springfield	725.75	7448.25	8915.00	62269.50	95.50	626.80	986.12	2908.24	121.45		2501.10	86597.71
Worcester	2059.75	10286.25	9641.00	63829.00	548.25	1281.00	1236.31	1233.95	105.70	38.00	14362.00	104621.21
TOTALS	8650.75	38906.25	43509.00	268231.15	904.75	3027.92	3961.52	9696.78	332.29	544.00	23497.41	401281.82

POOLS

AREA	CHILDREN	ADULTS	POOL PASSES	CONC.	MISC.	TOTALS
Witchburg	1872.15	225.50	2101.00		15.20	4243.85
Holyoke	3369.45	1162.00	746.00	200.00	28.84	5506.29
Milford	2032.50	624.50	414.00	440.00		3511.00
South Hadley	2402.55	1237.50	1258.00	610.00	6.66	5514.71
Westfield	3617.40	912.75	895.00	310.00	28.64	5763.79
Worcester	3058.65	1321.00	1124.00			5503.65
TOTALS	16352.70	5513.25	6538.00	1560.00	79.34	30043.29



1971 FISCAL YEAR REVENUE

AREA	PARKING FEES	WALK IN FEES	SEASON PASSES	CAMPSITE & CABIN RENTALS	OTHER RENTALS	CON- CES- SIONS	BINO- CULAR MACH.	OTHER SALES	MISC.	TOTALS
James Nowell	1029.00		80.00						163.96	1272.96
Washland	5880.00	16.00	1800.00			185.00		504.00 (cottages)	12.55	7893.55
Shmhere Lake										504.00
Heartown Forest	2900.00	13.25	1160.00	2585.00	2500.00				13.61	9171.86
Bradley Palmer	4750.00	6.25	550.00		1143.00 H.R.				50.00	6499.25
Bufumville	1600.00	15.00	580.00			15.00				2210.00
Chester Gardner	900.00	26.00	70.00							996.00
Chicopee	10050.00	202.50	3530.00			325.76				14108.26
Clarksburg	3100.00	12.50	1820.00	3996.00		301.24			20.00	9249.74
Bochituete	25100.00	346.25	13070.00			1250.00		1664.00	23.97	41454.22
Chassett					1239.00 H.R.			(Pier Permits)		1239.00
O.A.R.	2768.00		1100.00	4173.00		25.00			5.00	8071.00
Dean Pond	3200.00		560.00			101.15				3861.15
Emerect Lloyd	6100.00	3.50	1210.00			20.00				7333.50
Emmison Lake	4066.00		2220.00	12192.00		55.00				18533.00
Lighton Rock	750.00		70.00			10.00				830.00
Douglas	9300.00		1710.00							11010.00
Living	6800.00	55.75	2830.00	3736.00		160.00				13581.75
ederation	74.00		10.00							84.00
reetown	1800.00		380.00			10.00				2190.00
ranville	1116.00		70.00	4756.00						5942.00
ampton Pond	9800.00	1232.95	2450.00			250.00			4.29	13737.24
arold Parker	7950.00	137.50	1150.00	34926.00		50.00			97.55	44311.05
olland Pond	4548.00	7.70	1630.00						151.10	6336.80
treeter Rd. Beach						105.26				105.26
opkington	20950.00	18.50	13630.00		155.00 (stolen 7/19/70)	325.00		48.00 (Pier Permits)	.50	34817.00







[illegible]



AREA	PARKING FEES	WALK IN FEES	SEASON PASSES	CAMPSITE & CABIN RENTALS	OTHER RENT-	CON- CES- SIONS	BINO- CULAR MACH.	OTHER SALES	MISC.	TOTALS
Warren H. Manning	806.00	13.25	190.00		1750.00					1009.25
Office			180.00							180.00
Jury Duty										1048.00
Rental of Land										1750.00
(Tiske Hall property)										
Accident Settlement for										
31584										225.00
Charge for Canadian Checks										4.59
To correct entry 5/15/70										315.00
Bad Checks										53.00
TOTALS	228740.00	3624.65	66520.00	453341.50	13135.50	7689.41	376.28	26969.15	2674.42	803070.91





BUREAU OF INSECT PEST CONTROL

CHARLES S. HOOD - CHIEF

on a Collision Course

Two major concerns in this day and age are meeting head on and the outcome has not yet been resolved. Justifiable concern has been voiced by certain individuals and groups regarding certain uses of certain pesticides. This has been reflected in various actions of the Massachusetts Pesticide Board in restricting the use of these pesticides.

On the other hand Massachusetts has been beset by insect outbreaks of major proportions and many outbreaks of minor proportions during the past few years. These too, are of major concern to residents of the Commonwealth. There are very few things more discouraging and more awesome than to watch ones tree or trees being, slowly at first, and then suddenly swiftly devoured by hordes of insects. Equally as heart breaking is the knowledge that ones tree has a disease from which it may never recover.

Discounting the hysteria and fear evoked on both sides of the question and viewing the total situation rationally one finds much that needs doing. There must be approaches that can satisfy both extremes. If these approaches develop as a result of this collision we will all benefit. The Department of Natural Resources is the State agency most concerned with the environment. The impact of any pest outbreak on the total environment must be weighed against the possible damage a control measure may incur on this same environment. At times the decision is not an easy one to make.

Major Outbreaks

As long as trees are grown there will be pests on those trees. This year was no exception. In certain areas the oak and pine have been severely attacked by the gypsy moth. The sugar maple, birch and beech has been under attack from the saddled prominent. The pitch pines in southeastern Massachusetts and Cape Cod have suffered from three different insect pests - the pine needle miner, the Nantucket pine tip moth and the pine looper. Red oaks, and to some extent white oaks, in eastern Massachusetts have been defoliated by the oak leaf skeletonizer. Although there is no significant difference in intensity this year over past years the Dutch elm disease continues to take its toll of elms throughout the State. Beech continues to die as a result of the combined attack of the beech scale and the nectria disease.





## Insect and Disease Highlights

### Gypsy Moth

The aerial survey, conducted in July of 1970, to determine the current defoliation by the gypsy moth indicated signs of a rise in the extent of infestations during the next few years. Areas of the State that in the past have sustained serious outbreaks now show visible areas of defoliation again. Total defoliation was in the vicinity of 7,500 acres.

If we can judge by past history Massachusetts is due, within the next year or two, for an outbreak of major proportions. The last general outbreak ended in 1964. Normally, outbreaks reoccur every seven or eight years.

In the fall of 1970 those communities, particularly those on Cape Cod, which showed defoliation were carefully surveyed on the ground for egg masses. Bureau personnel assisted in this work. During this same period Nickerson State Park was also surveyed. Much of the park showed egg mass counts of 20,000 or more egg masses per acre. It should be noted here that 400 to 500 egg masses per acre in growth such as can be found in Nickerson will result in complete defoliation during the next summer.

Plans were formulated during the winter to aerially spray the park during the following spring. The decision was made to spray at the rate of one pound of Sevin per acre by means of helicopter. The proposal was accepted by the Pesticide Board and proposals to bid were sent to helicopter applicators licensed to work in Massachusetts. No replies to the proposal were received. The experience of last year ruled out the possibility of satisfactory control by means of ground equipment. The park was to remain open despite the known population of gypsy moth.

The decision to remain open was cause for great concern to the Plant Protection Division of the U. S. Department of Agriculture. This agency is charged with the responsibility for preventing the spread of the pest to areas of the United States and Canada not now infested with the moth. Camping trailers and camping equipment in general make ideal vehicles for the inadvertent transportation. Large larvae, pupae and egg masses are often found on or under such things.

The suggestion was made by the Federal agency that it contract for the application of Gardona, an organophosphate registered for this use. Application at the rate of one pound per acre was made on June 16 and 17, 1971. The project was only moderately successful. There would seem to be two major reasons for



this: (1) the enormous population of gypsy moth present on the area and (2) the lateness of the spray in relation to the larval development. The end result was the decision to close Areas 6, 6A and 7 until August 1, 1971 at which time the hazard will have subsided. It is quite evident at this writing that we will be confronted with the same problems next year at Nickerson.

New approaches to the control of gypsy moth are being attempted by the Federal Government in cooperation with various state agencies. Two of these cooperative tests are being conducted in Massachusetts assisted by this Bureau. The first of these is the application of various strengths of *Bacillus thuringiensis* by mist blower. The results have not been finalized at this writing. The second is the application of the synthetic gypsy moth sex attractant, Disparlure, to two hundred acres of gypsy moth infested woodland in the vicinity of the Quabbin Reservoir. Again the Bureau is cooperating. The aim of this particular project is one of confusing the male moths and preventing mating. Results should be evident this coming fall.

#### Saddled Prominent

For the third year this insect defoliated vast acreages of Berkshire County with some activity noted in Hampden, Hampshire and Franklin Counties. The total acreage of visible defoliation recorded by an aerial survey was 105,000 acres. This was a slight increase over the total defoliation of last year.

Inasmuch as this has been an areawide problem Bureau personnel have cooperated and worked with U. S. Forest Service entomologists and entomologists from the Applied Forestry Research Institute of Syracuse University in an attempt to better understand the habits and behavior of this insect. The clue as to how to predict population numbers a year in advance still eludes us.

A clue as to the reason for the eventual collapse of a saddled prominent outbreak may have come to light this year. During the last two weeks of June millions of saddled prominent moths were observed flying. Upon investigation it was found that they were all male moths. There may be something that genetically triggers this phenomenon which reduces the population to an endemic state where it remains for a period of years.

#### Oak Leaf Skeletonizer

Activity of this insect was reported from all sections of the State where oak grows in abundance. Eastern Massachusetts was more heavily hit than other areas.





During the past year the question arose as to the amount of damage being inflicted on the oaks by this pest. Some trees were almost completely defoliated by July 1. These trees did not refoliate during the remainder of the year. Apparently the defoliation had little effect on the trees as most put out a set of leaves this year.

The spring of 1971 saw a continuation of the outbreak of this pest in some areas and a lessening of intensity in other areas. It would appear that this may be the last year for this particular outbreak except for a few localized exceptions.

#### Nantucket Pine Tip Moth

This pest which has killed thousands of pitch pines on Cape Cod appears to be still on a rampage although somewhat of less intensity than the past few years. Thanks to the efforts of the Waltham Field Station owners of particularly valuable trees are now able to control the pest.

#### Pine Looper

During last September reports began to filter into the Boston office of the browned condition of the pitch pines in the Eastham - Wellfleet area of the Cape. It was soon determined that the pine looper was again on the upsurge. The last major outbreak of this pest was in 1960 and 1961. The outbreak then collapsed due to a virus disease.

Mid June of this year saw much moth activity in Plymouth. It is expected that during late summer of 1971 evidence of this insect will be noticeable throughout the pitch pine areas of southeastern Massachusetts.

On the recommendation of this Bureau the Department of Public Works will spray with ground equipment approximately twelve miles of the Mid - Cape Highway in Wellfleet and Eastham for control of the pest on its right of way.

#### Dutch Elm Disease

Although it is an old story it is still with us and causing a considerable amount of elm mortality throughout the State. During the calendar year 1970 there were 7,810 samples of elms suspected of having the disease cultered and confirmed as having the disease. This is a fifteen percent increase over the previous year. At the time of this writing it appears to be running ahead of last years figures.





Despite the apparent failure to control the disease it is being controlled through the combined efforts of the cities and towns and this Bureau. The efforts at sanitation and the supplemental spraying by communities are holding losses to a low percentage.

Bureau personnel, particularly the Tree Removal Crews, continue to assist deserving cities and towns in the work of removal and destruction of diseased elms.

#### Oak Leaf Roller

This is an insect which has caused severe mortality in stands of oak in Pennsylvania and New Jersey. Here in Massachusetts two relatively small areas have sustained outbreaks of this insect for the past two years. One of these is in the town of Mount Washington and the other in the town of Plymouth. No permanent damage has been noted as yet.

#### Hemlock Looper

A close relative of the pine looper, the hemlock looper, has built up to outbreak proportions in southeastern Massachusetts. It has been particularly destructive in stands of hemlock on the Fall River watershed.

This insect feeds in late summer and early fall on the needles of hemlock. The hemlock is a tree which rarely recovers from a complete defoliation. Observations last fall led to the recommendation that an immediate salvage cut be conducted on the area. This has been done.

Because of the concern voiced by those in charge of this watershed the Bureau was asked for control recommendations. Knowing that the insect had previously been controlled through the use of Malathion this was recommended. The proposal was submitted to the Department of Public Health for consideration inasmuch as it closely involved drinking water. It was given a go ahead by that Department. The application will be made in mid - August.

#### Excerpts from District Supervisor Reports

##### District #1

Eight towns on the Cape who had combined their financial resources to apply "Sevin" by aerial application cancelled their plans to spray, although the material was applied by ground method. The results were fair.

Isolated infestations of the brown tail moth were noted in Dennis, Barnstable and Truro (National Seashore Park). Clipping of winter nests and natural shifting of sand keeps this insect under control.



Some evidence of wood ticks in most towns in the District. Control measures are carried out for this insect annually in all towns by the local superintendents.

District #2

Small amount of spiny elm caterpillar found in the District.

There was a great deal more of the eastern tent caterpillar this year and there was much more of the forest tent caterpillar.

Gypsy moth is increasing in areas infested and it appears that in 1972 we will have more of it.

District #3

Several towns have a wood tick problem. The oak leaf skeletonizer has caused a great concern to most towns in District #3.

A fall webworm infestation was heavy in the Newbury and Newburyport area.

District #4

Several attempts to control the pine leaf aphid at Pearl Hill left much to be desired. During the winter of 1970 and 1971 all the spruce in the area were removed in an attempt to break the life cycle by the removal of the alternate host.

Oak leaf skeletonizer caused the greatest concern - especially in eastern Middlesex County.

May and June of 1971 showed an increase in gypsy moth larvae in Western Middlesex County.

Dutch elm disease still seems to be taking second place to the dying maples and pines along the roadsides.

Twelve days were spent picking up and delivering pesticides to be stored in the bunkers in Cohasset.

District #5

Gypsy moth populations are beginning to build up in certain areas of Douglas, Sutton and Oxford.

The fall webworm was extremely heavy in October all throughout Sutton, Millbury and Oxford.

White pine weevils are presently doing extensive damage to a Norway spruce planting around the reservoir property in Leicester.

Maple decline is taking more and more roadside trees annually.

The Dutch elm disease problem saw a definite increase in the numbers of afflicted trees throughout Southern Worcester County.





District #6

We assisted in tree removal in the forest and parks recreation areas in Districts 5, 6 and 7. A total of 165 trees were removed in State parks and other departments.

Light defoliation from the elm leaf beetle was noted in some towns in Northern Worcester County.

Worked with the U. S. Forest Service and the University of Massachusetts on an experimental spray project spraying test plots with *Bacillus thuringiensis* for control of the gypsy moth.

District #7

The saddled prominent was on the rampage again in this District. A total of 3,752 acres were defoliated in Hampden County and a total of 7,290 acres were defoliated in Hampshire County.

There was quite an increase in gypsy moth activity this year. An extensive area around Peaked Mt. in the towns of Monson and Hampden were severely infested with gypsy moth. It is suspected that most of these caterpillars were blown in from Connecticut due to the lack of sufficient egg masses in the area.

District #8

Dutch elm disease continues to be the number one problem in Berkshire County. Thousands of trees have died in the last year. No inroads can be made on this problem until cities and towns get totally involved on private property.

The beech scale and nectria canker complex continues to take its toll on American beech trees. Defoliation by the saddled prominent caterpillar has hastened the onslaught.

The green striped mapleworm this year is reported all over the County.

There is a good population of maple trumpet skeletonizer in the northern half of the County.

Small, localized outbreaks of gypsy moths in two public and three private camp grounds in Southern Berkshire County.

Last year saw 1300 acres of defoliation in Mount Washington from oak leaf rollers. The area shows some crown deterioration and old mortality from a previous outbreak.

There were a few cases of elm spanworm in the Great Barrington, Alford and Egremont area.





### Aquatic Weed Control

The Department is continuing in its effort to bring the aquatic weeds and algae under control in the various bodies of water for which it is responsible.

Areas treated last year were Lake Cochituate for control of algae, Watson Pond in Taunton was treated for weeds and algae, the swimming area at Hopkinton State Park was treated for weeds and algae, Stearns Pond in North Andover was treated for weeds, Dean Pond in Monson was treated for weeds, Big Bear Hole in Taunton was treated for weeds and algae and Middle Pond in Taunton was treated for algae.

All treatments were successful bringing the Department closer to the time when all of the bodies of water will be on a maintenance basis and not a crisis basis.

### Pesticide Storage

Pesticides are still being received from time to time for storage in the bunkers at Wampatuck State Park. At the present time there are approximately 133 tons of various formulations, both liquid and powder, stored in three of the bunkers.

Deterioration of the pesticide containers will give cause for some concern in the near future. All precautions are being taken to prevent leakage, etc but the age of some of the containers may cause problems.

Those personnel who must enter the bunkers for one reason or another have been supplied with the best respirators available.

### Hazardous Trees

It came to the attention of the Bureau last year that there was the possibility that on our various parks and recreation areas might be dead or unhealthy trees. These trees could pose a hazard to those camping or picnicking under them due to falling limbs and branches.

Last fall each recreation area across the State was surveyed by Bureau personnel in the company of Recreation personnel to determine the location of any of these hazardous trees. A number of these were found and the hazards removed by either park personnel or the Bureau tree removal crews.



Summary

As far as Bureau activity is concerned the past year has been one of rising insect populations and rising concern for the environment. Such things as saddled prominent, gypsy moth, pine looper, oak leaf skeletonizer and Nantucket pine tip moth have chewed their way through thousands of acres of trees. At the same time some of the better tools from the viewpoint of the applicator have been questioned as possibly toxic to other living forms.

On the one hand we find the environment being altered by tree insects and disease and on the other hand people stating that to control these pests is to help destroy the environment. Someday the question will be resolved. Until that time the judgement of those charged with protecting all of these interests must prevail and that judgement must be good.



BUREAU OF FOREST DEVELOPMENT

JOHN H. LAMBERT - CHIEF FORESTER

Forestry Highlights:

Education & Training:

James Toffling, Forester for Northern Worcester County helped plan and coordinate a Division-wide in-service training program on orientation, as to the various Division functions. This was not only given in each Region, but also to the office personnel.

Foresters in Berkshire County conducted a forest landowner workshop on forest improvement.

A number of our foresters attended a "Symposium on Trees and Forests in an Urbanizing Environment" at the University of Massachusetts.

Region #4 foresters were deeply involved with a conservation workshop conducted at the Hawley State Forest.

Region #3 foresters were again part of the training team for the Massachusetts Conservation Camp held on the N. Spencer State Forest.

Most of the foresters were involved with various Boy Scout conservation projects through the year, the outstanding project being the supervision of some 5,000 Boy Scouts making trails on Wompatuck State Park on June 5, 1971.

Besides numerous forestry talks to high schools one of the foresters gave a lecture to the Park Management course students at the University of Massachusetts.

Forester Parker in southern Worcester County has spent considerable time in planning layout and conducting conservation education projects at the Buck Hill Conservation Area in Spencer.

Foresters Work On Legislative Studies And Reports:

A legislative study, House #4931 of the scenic and recreational streams in Massachusetts was compiled by Forester, L. Lee after the facts were gathered by the foresters and other Division personnel.

A companion study, House #4930 requested by the legislature involved a compilation of all kinds of trails in Massachusetts. Facts were gathered by Division personnel and the report written by Forester, Charles Dane.

The foresters devoted considerable time gathering facts for the Division of Conservation Services on the Open Space and Outdoor Recreation Inventory of Massachusetts required by B.O.R.







Several foresters have been involved in making Environmental Impact reports for this Department, which is required in regard to the building of State & Federal highways by the Department of Public Works. Highway routes numbers 2, 23, 25, 52 I-95 and I-391 have been reported on.

An updating of a Directory of Massachusetts Sawmills and Loggers was checked and corrected by the foresters, and then published by the Cooperative Extension Service.

An Ecological Study of Mt. Tom County Reservation was made by Forester, William Rivers.

#### Interest In Champion Trees And Natural Areas:

Following correspondence with the Yankee magazine on whether New Hampshire or Massachusetts had the biggest tree of several native species the Division started a campaign to find out where the largest trees of each native species were to be found. A partially complete listing of known large trees in Massachusetts was publicized. It was climaxed by an Arbor Day measuring by Commissioner Arthur W. Brownell of the largest American Beech (20'6" circumference) in the United States. The Beech had been found in Jamaica Plain. We have found a great deal of interest in looking for Massachusetts Champion and Town Champion trees.

The great hue and cry about the destruction and pollution of the environment has created a desire to save remnants of virgin forest types and plant associations. A start has been made in listing and setting aside as Natural Areas good specimen areas on our State Forest & Parks. A particular good one is the virgin Northern Hardwoods type on the Mohawk Trail State Forest. In addition, we have set it aside as an ecological area. We are in the process of acquiring a virgin Atlantic White Cedar swamp in Freetown, which will be used, in part, for the same purpose.

#### Wooden Highway Posts Better Than Steel:

Charles Gatchell of the U. S. Forest Service wood research center at Princeton, West Virginia proved very convincingly with charts, stop motion movies and slides that wooden highway posts stood up better with less damage to the posts and vehicles than steel posts. This proof was given in an illustrated talk given before state highway engineers, utilization foresters and post industry people at a meeting in Boston on March 24th. This meeting was organized by Ed Sprague, Wood Utilization Specialist of the U. S. Forest



Service to try to convince state public works departments to use local woods for highway posts. The two local woods tested were Red Pine and Red Oak. It is hoped Massachusetts will change to wooden posts as it was shown that wood can be driven in rocky ground with less damage at equal cost, where steel posts will curl.

Town Forests & Conservation Commissions Asking For Environmental Advice:

This year, many Town Forest committees and Conservations Commissions have asked our foresters to look over their land areas and advise them how to plan and carry out the care and maintenance to improve the aesthetics and health of their forests, so as to make a better environment. We have also helped in the marketing of wood products in some cases.

The foresters have been involved with team Resource Inventory Reports for a number of towns. These teams are composed of foresters from this Division, Soil experts from the U. S. Soil Conservation Service and Wildlife specialists from the Massachusetts Division of Fisheries and Game.

Massachusetts Forest Resources Being Reinventoried:

After many problems and delays, Massachusetts was flown and photographed in the late summer and early fall of 1970, under contract by the U. S. Agricultural Stabilization and Conservation Service at a scale of 1:40,000. The U. S. Forest Service and our foresters have tested these photos and found them satisfactory for reinventory purposes. The U. S. Forest Service Team has been set up in Amherst to begin to gather data for a new forest resource inventory of the Commonwealth. The last was done in 1953.

Service To Private Woodland Owners:

Massachusetts and U. S. Forest Service Cooperative Forest Management Program

Massachusetts G.L., Chapter 132, Sec. 6 and U.S. C.F.M. Acts 1950

P.L. 81 - 729

Foresters have again serviced approximately 10% of the forest landowners with forestry advice and demonstrations, as to how best to treat their land to improve the environment for one forest use or another. (See Chart)

Christmas tree plantation care and maintenance demonstrations were one type of service, which has been quite practical and popular for high value land.

Fish and Game Clubs owning considerable forest land have been the site





of excellent multiple use forest management demonstrations. A good example is as follows:

Townsend Rod & Gun Club:

Who Participated

Townsend Road & Gun Club, Massachusetts Department of Fisheries & Game, Soil Conservation Services, Massachusetts Department of Natural Resources, Middlesex County Extension Service and the University of Massachusetts Extension Service.

Where It Was Done

Townsend Rod & Gun Club off Emory Road, Townsend, Middlesex County, Massachusetts.

When It Was Done

After preparation of three full days time on Saturday, May 15, 1971.

Why It Was Done

The Club members on the conservation committee were active tree farmers on their own lands and were instrumental in furthering forest land management practices on the Rod & Gun Club land. 1) They had requested a field meeting on the club lands to show other clubs that they had done, and 2) also, to obtain some information on management for fish and game.

What Was Accomplished And How

A. A talk was given by Jack Dixon, Fisheries Manager, Northeast District, Massachusetts Department of Fisheries and Game. His talk included fisheries management with expert fly fishermen fishing in the background at one of the two ponds on club land.

B. A talk was given by Charles Conlin, Soil Conservation Services, at the second pond, in reference to construction specifications and equipment with a demonstration of fire protection by the fire crew, Massachusetts Department of Natural Resources, using portable fire pumps and forestry hose.

C. A talk was given by the Massachusetts Department of Fisheries and Game, District Manager, Walter Hoyt, at the cleared land under the power line for game feed plots.

D. Lunch at the Club House.

E. A talk was given by the Club Conservationist, Gaylord Stockwell at an open area in the woodland on the history of the Club's timber stand improvement work and tree planting. Also at this site, a talk was given by Walter Hoyt





on the idea of keeping these areas open for game management and encouraging plants for wildlife feeding: such as, Amelanchier, Populus, and Vaccinium, which are native and growing in the open areas.

F. The next stop on the tour was a marked plot showing the timber management aspect of the woodland. The State Extension Forester, John Noyes, and the District Forester for Middlesex County, Willard H. Estes, both spoke at this site in reference to forest management and the new classified forest law.

G. The last stop was by a brook where the District Wildlife Manager talked about stream management.

#### Accomplishments Of The Club On 230 Acres:

- A. Two ponds constructed.
- B. Three timber sales marked.
- C. 50 acres of timber stand improvement work completed.
- D. Access Roads kept open and maintained.
- E. Funds derived from fishing derbies and timber sales have been put into land acquisition, pond construction, and timber stand improvement.

Besides the individual visits with forest landowners considerable time has been given to meetings and inspections in regard to forestry practices under the auspices of the U. S. Agricultural Stabilization and Conservation Service. This is a federal agricultural subsidy program which pays part of the cost of forest improvement practices such as weeding, thinning and pruning. Our foresters give prior and final approval on these practices.

From time to time forest industry woodland owners are helped with their problems. The following is a good example of such help.

#### Even Dogs Have Colorful Bedding

During the summer of 1971 a new forest industry, utilizing eastern white pine chips from a local sawmill, was established in the Town of Plympton. This wood residue industry processed the wood chips by screening them for size, injecting color into them and bagging them in plastic bags. The bags of colored wood chips are then sold to the horticultural market. Most of the colored wood chips are sold at garden supply centers for a colored mulch.

A Wood Utilization Specialist from the U. S. Forest Service located at Portsmouth, New Hampshire was requested to make a visit. When the visitation was made, the coloring process and injecting of odors into wood residues was discussed. The Plympton Mill then tried to inject cedar odor into eastern white



pine shavings as an experiment. These shavings were to be sold to pet supply outlets for pet bedding.

During the winter of 1971, an old wood industry was sold to a new owner. This mill located in the Town of Hanson produces dog bedding from Atlantic white cedar by milling cedar bolts with excelsior machines.

A visitation to this mill shortly after it came under new management brought a new problem to light. This problem was a lack of a supply of suitable Atlantic white cedar that could be processed into dog bedding.

It was then suggested that the two mills get together, which took place in the Spring of 1971. A trial batch of shredded eastern white pine was injected with cedar odor as a substitute for the more expensive Atlantic white cedar bedding.

Both of the mills are apparently now going to work together on the process of eastern white pine dog bedding with an injected cedar odor as an inexpensive substitute for cedar dog bedding.

#### A Substitute for State Tree Seedlings.

This Division went out of the business of raising and furnishing seedling trees for landowners in 1970. Therefore, we have made a listing of a number of private nurseries which sell similar size and species of tree seedlings in quantity at reasonable prices. This listing is sent out to anyone requesting information about obtaining seedling trees. The people are also advised to contact our foresters for further planting advice.

#### 4. CLASSIFICATION AND TAXATION OF FOREST LANDS AND FOREST PRODUCTS

##### Chapter 61 of the General Laws as amended in 1969 by Chapter 873

This newly revised forest tax law completely changed the administration of this law by requiring a forest landowner to show the State Forester that his forest land was "being managed under a planned program to improve the quantity and quality of a continuous forest crop". This meant that forest management plans had to be submitted and approved through our foresters in accordance with the above quote.

We tried to warn all owners under the old law and publicize the fact that certain procedures must be found through to qualify for a Certificate of forest management from the State Forester. We also warned everyone that this Certificate must be submitted to Assessors by September 1st. As it worked out we received most





of the 119 plans submitted during the month of August. Three plans were disapproved although others had been shown in the field that they had not met the specifications of management.

The final Certification for Classification on September 1, 1970 was 116 plans covering the forest management of 16,247 acres in 48 towns. The largest number of plans (38) and acreage (6,555) was submitted in Worcester County, followed by 24 plans and 1,714 acres in Middlesex County and 20 plans and 4,194 acres in Hampshire County. This made a heavy load of work for the foresters in these three counties, not only to inspect and approve forest management plans but also the increased forest improvement work demanded under the act.

Appeals were held for the towns of Brookfield, Groton and Northampton. The State Forester ruled for the forest landowners in Brookfield and Groton but agreed on adjustments in the town of Northampton.

Although the impact was heavy and concentrated in August 1970, it was actually less than expected because people were cautious about getting involved with Section 6 of the law which required payment of back taxes if one changed the land use.

5. - THE LITTLE WATERSHED PROGRAM, U.S. PUBLIC LAW #566

Mass. G.L., Chapter 132, Section 6

The principal work of the foresters under this law is similar to the Service Forestry program except it is delineated by watershed boundaries rather than by County lines. Like the Service Forestry program, the foresters furnish advice and service to woodland owners and forest industry under a Federal-State cooperative agreement.



The U. S. Forest Service allots money up to a maximum of 80% to each watershed approved for flood control.

This year, monies were allotted for the Clam, SuAsCo, Upper Quabog and West Branch of the Westfield Rivers. However, other watersheds were covered under the regular C.F.M. program with federal C.F.M. monies up to a maximum of 50% reimbursement for state expenditures.

Besides the land treatment and educational work (see chart), the foresters spent considerable time in gathering watershed and river basin land use data for the U. S. Forest Service on the Neponset, Blackstone, Nashua, Parker, Ipswich, North Shore, Merrimack, Assabet, Sudbury, Concord, Housatonic and Hoosic Rivers.

#### 6. STATE FORESTS DEVELOPMENT

##### Mass. G. L. Chapter 132, Sections 31 & 33

Three temporary foresters and three assistants (Forest & Park Supervisors) try to carry on and supervise the forest management activities on some 225,000 acres of state forests & parks which have to do with the inventorying, planning, health and harvesting of this vast permanent forest resource. These foresters and their assistants should be permanent and there should be at least five units.

##### Forest Inventories

The biggest boost in inventorying our forest resources this year was having adequate money to get keypunching and data processing brought up-to-date on past inventory field work. This will shortly enable us to get out some up-to-date inventory reports.

The management forestry units reinventoried the October Mt., Monroe, Florida and H.O. Cook state forests under the continuous forest inventory program.

##### Master Plans and Planning

The Eastern forests management unit worked on maps for the Lowell-Dracut





forest master plan. They also worked up plans and maps for the Martha's Vineyard, Nantucket, Douglas and Freetown State Forests. The data for the Martha's Vineyard forest was in connection with a federal employment program called Operation Mainstream which did considerable forest improvement on this forest. The plans and maps for the Freetown forest were for a proposed Youth Corps forest improvement crew. Basic maps for handout maps were made of a number of the State Forests and Parks.

The Connecticut Valley forest management unit wrote up the master plan for the Hawley forest and made maps and forest inventory data available for the Chester-Blandford, Daughters of American Revolution and Mt. Grace master plans which were written up by the service foresters from Hampden, Hampshire and Franklin Counties.

The Berkshire forest management unit worked on plans and maps for the master planning of October Mt. State Forest.

#### Forest Improvement - Silviculture

Whether a forest is being managed for aesthetics and recreation for people or for forest products, wildlife and water it must be kept in a healthful condition in all cases. This means forest weedings, thinning, pruning, etc. To do this requires manpower.

As the regular forest & park crews have more and more become tied up with year-round recreational maintenance and supervision activities, the ability to accomplish forest improvement has been reduced except for Correction Department crews. There is a great need to budget for summertime forestry student crews such as we had between 1960-1969 in order to carry on this much needed improvement work. Forestry students improved 9,000 acres in this period.





The Connecticut Valley and Berkshire forest management unit checked and did maintenance work on 24 and 13 miles of boundary lines on the Conway, D.A.R., Cook, Monroe, Warwick, Chester, Montague, Florida, Mohawk Trail, Clarksburg, Mt. Greylock, Bash Bish, Savoy and Windsor State Forests.

The following is a listing of the acreage of forest improvement work accomplished this year.

FOREST	THINNING	PRUNING	LIBERATION
MYLES STANDISH	20 acres	20 acres	-
LOWELL-DRACUT	5 acres	5 acres	-
WILLOWDALE	5 acres	5 acres	-
OTTER RIVER	3 acres	-	-
WELLS PARK	2 acres	-	-
H.O.COOK	20 acres	-	-
ERVING	-	-	5 acres
TOTAL	55 acres	30 acres	5 acres

Several miles of roadside beautification was accomplished in each of the five Division Regions.

#### State Forest & Park Land Acquisition

The Chief Forester and all the foresters have spent considerable time throughout the year in inspecting potential areas for acquisition, making ownership studies and making reports on the advisability of acquiring innumerable areas. These involved interior lots, adjoining lots and new areas with recreational possibilities.

#### State Forest Timber Sales

This year the timber sales are better than last year and prices seem to be holding better. The poor quality white pine we have sold for an average



of \$17 per 1,000 board feet, whereas the fair quality hardwoods have brought better than \$34 per 1,000 board feet.

For a number of years we haven't sold much timber from eastern Massachusetts forests. This year, almost 400,000 board feet was sold in Region #2 which includes Essex and Middlesex Counties - two heavily populated counties.

Although Region #3 did not have any timber sales the management forester marked 4,000 board feet of Oak on the Spencer forest for bridge planking. He also marked 50,000 feet on the Myles Standish forest and the 106,000 foot sale on the Townsend forest.

Region #4 made only one timber sale but at the end of the fiscal year nearly 400,000 board feet was marked which will show up in sales in fiscal 1972. Some 25,000 board feet of pine was blown down in the Warwick forest by a small tornado which has been salvaged.

STATE FOREST	PRINCIPAL SPECIES	VOLUME	INCOME
<u>Region #1, S.E. Mass.</u>			
Myles Standish	Salvage Burned Pine	40 cords	\$ 40.00
<u>Region #2, N.E. Mass.</u>			
Willowdale	White Pine, Red Oak	148,000 bd. ft.	\$2,025.00
Townsend	White Pine, Oak	106,000 bd. ft.	2,520.00
Rhea Lot	Mostly White Pine	86,000 bd. ft.	1,335.00
Willowdale	Mostly White Pine	125,000 bd. ft.	2,156.00
<u>Region #3, Worcester County</u> - NO SALES			
<u>Region #4, Conn. Valley</u>			
Hawley	Northern Hardwoods Other Hardwoods	165,000 bd. ft..	\$6,601.00
<u>Region #5, Berkshire County</u>			
Beartown	Poor White Pine	136,000 bd. ft.	\$1,360.00
October Mt.	Northern Hardwoods	230,000 bd. ft.	7,058.14
TOTALS:		996,000 Bd. Ft. & 40 Cords	\$23,095.14





FOREST CUTTING PRACTICES

Mass. G.L. Chapter 132, Sec. 40-46

The 1970 Legislature changed sections 43 and 46 of this law by first increasing the penalty for owners not notifying before cutting. The second added requirement had to do with being able to revoke a required harvesters license with increased penalties for any operator who failed to follow the law.

In spite of these changes in the law, notices of cutting have not increased. This is partially due to increased demands on the foresters time in assistance to the private owners and communities.

Reports of Cutting under Chapter 132, Section 42 - Fiscal 1971

COUNTY	NOTICES	CUT PLANS	FINAL REPORTS	ACRES	TIMBER CUT 1,000 BD. FT.	PULP CORDS	NUMBER OF LICENSES
BARNSTABLE	-	-	-	-	-	-	-
BERKSHIRE	32	6	26	1,058	3,571	-	17
BRISTOL	-	-	-	-	-	-	7
ESSEX	3	3	-	37	295	-	6
FRANKLIN	7	7	-	195	33,381	-	21
HAMPDEN	-	-	-	-	-	-	7
HAMPSHIRE	-	-	-	-	-	-	12
MIDDLESEX	-	-	-	-	-	-	5
NORFOLK	-	-	-	-	-	-	3
PLYMOUTH	-	-	-	-	-	-	5
WORCESTER	-	-	-	-	-	-	7
TOTALS	42	16	26	1,290	37,247	-	80



COOPERATIVE FORESTRY SERVICE TO PRIVATE WOODLAND OWNERS  
(by Counties) Fiscal 1969

PROJECTS	BERKSHIRE	Norfolk Bristol	Essex	Franklin	Hampden	Hampshire	Middlesex	Barnstable Plymouth	Worcester	TOTALS
Forest Acres in County	459,000	333,000	159,000	360,000	260,000	222,000	234,000	377,000	685,000	3,089,000
Foresters (No.)	2	1	1	2	1	1	1	1	2	12
Service Requests (No.)	598	224	221	288	159	201	251	205	518	2,665
Woodlots (No.)	487	221	165	273	152	201	157	332	464	2,452
Assisted (Acres)	16,173	6,331	3,712	6,011	4,097	9,523	5,215	6,960	14,030	72,052
Management (No.)	59	17	30	48	32	26	17	28	86	343
Plans (Acres)	10,253	3,455	1,476	3,823	2,809	5,063	1,418	6,020	10,382	45,199
Timber (Acres)	456	30	183	87	39	156	115	155	82	1,303
Marked (Vol. MBM)	1,905	73	1,012	293	204	666	554	297	199	5,203
Wood (Acres)	1,183	292	84	190	149	256	185	660	702	3,701
Products (Vol. MBM)	4,366	628	549	727	314	835	701	1,507	1,991	11,613
Sales (Val. \$1)	103,796	13,757	16,160	13,620	6,400	28,669	15,187	28,870	59,367	285,826
Loggers Helped (No.)	64	7	18	29	11	44	13	9	17	212
Timber Improved (Acres)	373	71	97	222	164	107	110	128	512	1,784
Trees Planted (Acres)	24	31	3	6	12	2	2	28	52	160
Owners Assisted Recreation (No.)	2	13	4	6	7	5	0	0	17	54
Commercial Rec.	0	80	40	0	205	0	0	0	535	910



PUBLIC LAW #566

ACCOMPLISHMENTS IN FLOOD CONTROL LAND TREATMENTS

(by Watersheds) FISCAL 1971

ACTIVITY	BLACKBERRY RIVER	BRADLEY BROOK	CLAM RIVER	QUABOAG RIVER	SOUHEGAN RIVER	SUASCO RIVERS	W.B. WESTFIELD	TOTALS
SKID ROAD (MILES)	0		2	0	0	0	0	2
EROSION (ACRES)	0		8	0	0	0	0	8
TREES PLANTED (ACRE)	0		0	16	1,000	1		17
TREES (NO.)	0		0	16,000				17,000
HYDROLOGICAL MARKET (ACRE)	0	0	0	35	0	0	0	35
TSI TREATED (ACRE)	32	30	10	97	3	50	38	260
HARVEST CUTTING								
MARKED (ACRE)	0	0	25	10		25	82	142
CUT (ACRE)	10	40	345	130		0	152	577
FIRE CONTROL ACCESS (FEET)	0	2,500	0	7,920	0	0	0	10,420
FIRE CONTROL PONDS (NO.)	0	0	0	2	0	0	1	3
OTHER MEETINGS (NO.)	0	3	2	20			8	33
MANAGEMENT PLANS (NO.)	1	1	11	17	1	1	11	43
AREA INVOLVED (ACRES)	700	10	833	595	30	25	1,530	3,723
WOODLAND OWNERS CONTACTED THROUGH FORESTER (NO.)	0	0	0	5	0	0	26	31
THROUGH OWNER (NO.)	3	7	12	63	0	25	20	120
WOODLAND OWNERS ASSISTED								
NEW CASES (NO.)	2	1	3	20	0	13	24	63
REPEAT CASES (NO.)	1	6	9	48	1	12	16	93





\*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\*  
\* \* \* \* \*  
\* \* \* \* \*  
\* A N N U A L R E P O R T \*  
\* \* \* \* \*  
\* F I S C A L Y E A R E N D I N G J U N E 3 0 , 1 9 7 1 \*  
\* \* \* \* \*  
\* D I V I S I O N O F L A W E N F O R C E M E N T \*  
\* \* \* \* \*  
\* K E N N E T H A . C R O S S M A N , D I R E C T O R \*  
\* \* \* \* \*  
\* F R A N K L I N S . G R A V E S , A S S I S T A N T D I R E C T O R \*  
\* \* \* \* \*  
\* A L M O N H . G R I F F I N , A S S I S T A N T D I R E C T O R \*  
\* \* \* \* \*  
\*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\* \*\*\* \*\*



## PERSONNEL

During the fiscal year the division lost two of its most valued employees with the retirement of Supervising Natural Resource Officer Gaylord Pike and the untimely passing of Natural Resource Officer John Morse.

Mr. Pike provided outstanding leadership for over 30 years having served as Conservation Officer, Supervisor and Chief Inland Officer during his service with the department.

Natural Resource Officer John Morse had served 12 years in the field of Law Enforcement. He was originally appointed a Bourne Police Officer in 1958 and served as a Natural Resource Officer in the north central area of the state since his appointment in 1966.

The division was most fortunate to have had the opportunity to appoint Mr. Walter Nowak to the position of Natural Resource Officer without competitive civil service examination. Being the holder of the nation's second highest military award, the distinguished service cross, qualified him for this position. The officer has been assigned to Water Pollution Control - Amherst.

The following changes were made in the officers' assigned areas for the good of the service:

Arthur Wickey - from Water Pollution Control - Amherst to Region III (North Shore).

Gordon Como - from Region III (North Shore) to Southeast Water Pollution Control district - Pembroke.





## OPERATIONS

After considerable study, reorganization of the regional and district structure became effective May, 1971 in order to achieve maximum efficiency in our ever broadening services to the public. Four years have passed without any major changes having been made in the officers' area of responsibility. Emphasis was placed on more equal distribution of the work load, which should result in better and faster service to the public all over the state. However, it is still believed that the districts and regions are too large for efficient coverage due to the increasing public demand for more law enforcement.

Although the division is currently experiencing a lack of manpower, we are providing at least minimum coverage at all times. The discrimination charges in regard to the newly adopted entrance requirements for Natural Resource Officer candidates has been resolved in favor of the Division, but had delayed the conducting of an entrance examination for well over a year. It is expected the five existing vacancies will be filled upon completion of the recently held civil service examination appeals.

There has been little increase in our resource enforcement manpower in this state for twenty years. During this time the duties and responsibilities have greatly increased, as have activities, complaints and warnings. The steady recreational growth of the state by residents and non-residents alike enjoying



camping, beaches and other recreational opportunities is due in large part to the attraction of our large tracts of state-owned properties. The accompanying pressures indicate a need for more study of our enforcement problems here. A moderate increase in additional personnel could provide much better service to the department and the public.

Since people are becoming increasingly more aware that a Natural Resource Officer can be reached by radio through calling the Boston Communications Center or the regional field offices, our services have greatly improved. Complaints of all types ranging from sick raccoons, illegal dragging operations, dogs pursuing deer, shellfishing in contaminated areas, lobster gear molesting, wetlands filling, water pollution sources, etc. indicate further cooperation of the public in reporting violations.

As a result of enacted legislation which benefited most all state law enforcement agencies, the wages of division personnel were elevated equal to or higher than similar such agencies in other states around us and across the nation.

Meetings of the entire Natural Resource Officer force have been held from time to time. Information and discussion at these and supervisory staff meetings is intended to bring about more consistent policy between various parts of the state. Meetings at the regional level brought about better cooperation with other divisions of the department by having their personnel present to explain and discuss particular problems. One of the most important division considerations is cooperation and goodwill between divisions





of the department, and this relationship has steadily improved. On the part of the Natural Resource Officers, a better feeling and greater understanding has been built by their actively assisting personnel of other divisions in their work.

Four of the seven regions have now been supplied with one snowmobile each, which also can be used on request by neighboring officers. These machines have helped in search and rescue operations and in keeping violations down, as the officers can get quickly into those areas where hunters, etc. have gone on their snow machines. The rapid increase in snow vehicle travel has presented many new problems for the law enforcement officer and will require substantial purchases of such operation equipment to carry out their responsibility.

Surveillance and patrol by air continues to prove the helicopter as a most valuable enforcement tool, particularly in policing Marine fisheries activities. As in other years, it has again proven useful in searches for lost persons, control of dog-deer problems, water pollution and wetlands and a variety of other activities requiring the services of the division. The two coastal patrol vessels are in only fair condition but patrol efforts will be greatly enhanced by the addition of a 45' aluminum twin-diesel powered craft presently under construction. The 17 year old wooden hull "Mary Caroline" is to be traded in upon delivery of the new vessel. Greater safety, speed and seakeeping ability is expected from this new equipment.





## EDUCATION AND TRAINING

Regional meetings were conducted from time to time throughout the state, updating laws and setting policies of the division for all personnel. Especially, the new Marine Fisheries licensing law was given special attention because of drastic changes from old law to present one. Snowmobile and recreational vehicle laws, also new, were given detailed attention.

Boat based personnel and Supervising Officers attended an operation "Padie" conducted by the First Coast Guard District in Gloucester. Purpose of the meeting and exercises was to test the reliability of information received from state and local agencies and the general public. The operation was directed towards preventing subversive and illegal entries into the Commonwealth. The division has been active in this phase for several years and from time to time refresher courses are given and methods updated and procedures reviewed.

A one day seminar conducted by Professor George J. Swidler of Northeastern University was held for all personnel of the division at Hamilton Rod and Gun Club in Sturbridge on March 3, 1971. Subject matter dealt with was Investigation and Interrogation Techniques. Our officers are now better trained in modern methods and improvement is expected as a result of an excellent program put on by Professor Swidler.



Officers Griffin, Smith and Caracciolo conducted a one day seminar for Forests and Parks personnel and Fire Wardens and patrolmen at the Armory in Worcester on April 13, 1971. About eighty attended. Enforcement procedure on state forest and park rules and regulations, apprehension, interrogation, summons, and court procedure were among subjects covered. Considerable interest was evinced by those attending. Requests for schooling in more detail was made by students. Time limitation curtailed proper coverage of all subjects. Much favorable comment was heard by those in charge of the program.

Several officers are continuing their education at the various community colleges throughout the state. Most men are taking two and some three courses per semester. The division is appreciative of their efforts to become more efficient officers, thus improving the image of the division.

A two day training program for about 40 officers was held at Martha's Vineyard at the Lobster Hatchery on April 27 and 28 under the direction of the staff at the hatchery. Officers were schooled on how to detect those female lobsters from which the eggs were removed by means other than natural hatching and are now prepared to prosecute successfully cases concerning same. The course was presented so thoroughly that the lowest two examinees scored 90%. Each officer was required to examine and identify 20 lobsters and to furnish proof of whether scrubbed or not, if questioned.





Plans are being made to hold a seminar in the coming year relative to distinguishing meats of game animals from those of domestic animals and also post-mortem determination of deer carcasses in order to better prosecute illegal activities concerning aforementioned subjects.



## COURSES IN THE SAFE HANDLING OF FIREARMS FOR MINORS

During the fiscal year the officers of this division conducted 101 classes for minors in the Safe Handling of Firearms. The courses were held in high schools, fire stations, police stations, fish and game clubs, armories and town halls in 84 different cities and towns throughout the Commonwealth. All together the division instructed 2,858 youths between the ages of 15 and 18 years and presented Certificates of Competency to each. The certificate entitles the holder to obtain a hunting license and go afield without being accompanied by an adult. Since commencement of the Hunter Safety Program, the division has graduated 47,715 youngsters. In addition to the instruction relating to the Safe Handling of Firearms while in the woodlands and fields, emphasis has been placed upon the sportsmen's relationship with the landowner and farmer together with the importance of compliance of the laws dealing with natural resources in general. The direct result of such courses should substantially reduce the careless and negligent use of firearms.

The Federal Aid in Wildlife Restoration Act amendment of 1970 (Public Law 91-503 Federal assistance for hunter safety training) now makes funds available for the state hunter safety program on the basis of 75% federal-25% state funding. The division is presently endeavoring to be the receiving agency of the monies made available for this worthwhile program.

We are pleased to report that there has been a reduction of 30% in the number of hunting accidents coming to the attention of this office and investigated by the Natural Resource Officer.



Investigation shows that the three (3) largest contributors to hunting accidents are as follows:

CARELESSNESS

IGNORANCE

HORSEPLAY

We are directing our efforts to further reduce the number of hunting accidents by promoting greater participation of minors in the courses in the "Safe Handling of Firearms" offered by this division.





COURSES HELD IN THE FOLLOWING CITIES OR TOWNS

Amesbury	Ipswich	Taunton (2)
Amherst		Templeton
Ashburnham		Townsend
Ashby	Kingston	
Athol		
Attleboro		Waltham
Auburn	Lee	Ware
	Lenox	Webster
	Leominster	Wenham
Barnstable	Lunenburg	Westfield (2)
Barre (2)	Lynn (2)	Westford
Belchertown		Whitman
Beverly		Winchendon
Billerica	Marblehead	Worcester
Bolton (2)	Marlboro	
Boston	Marshfield	
Bridgewater	Mattapoisett	
Brockton	Methuen	
Buckland	Middleboro (2)	TOTAL 2,858 passed
	Middleton	125 failed
	Monson	
Chelmsford	Montague	
Chicopee (3)		
Conway		
	Nantucket	
	North Andover	
Dalton	North Brookfield	
Danvers	Northfield	
Eastham	Oak Bluffs	
Easthampton (2)	Orange	
	Oxford (2)	
Falmouth		
Florence (2)	Palmer	
Franklin	Pittsfield	
	Plymouth	
	Provincetown	
Georgetown		
Gloucester (2)		
Grafton	Rockland	
Granby	Rutland	
Great Barrington		
Greenfield (2)		
Groton (2)	South Deerfield	
	South Hadley (2)	
	Southwick	
Haverhill (2)	Spencer	
Holden	Springfield	
Holyoke (2)		
Huntington		



HUNTING ACCIDENTS - 1971

STATE OF COURSE - UNDER 18 YEARS OF AGE:

<u>STATE OF CASUALTY</u>	<u>FATAL</u>	<u>INJURED</u>
Play - Carelessness		1
Use of fire		

GRADUATE OF COURSE - UNDER 18 YEARS OF AGE:

Use of weapon		
Carelessness		1
Use of fire		
Shooters sight		1

18 YEARS OF AGE AND OLDER

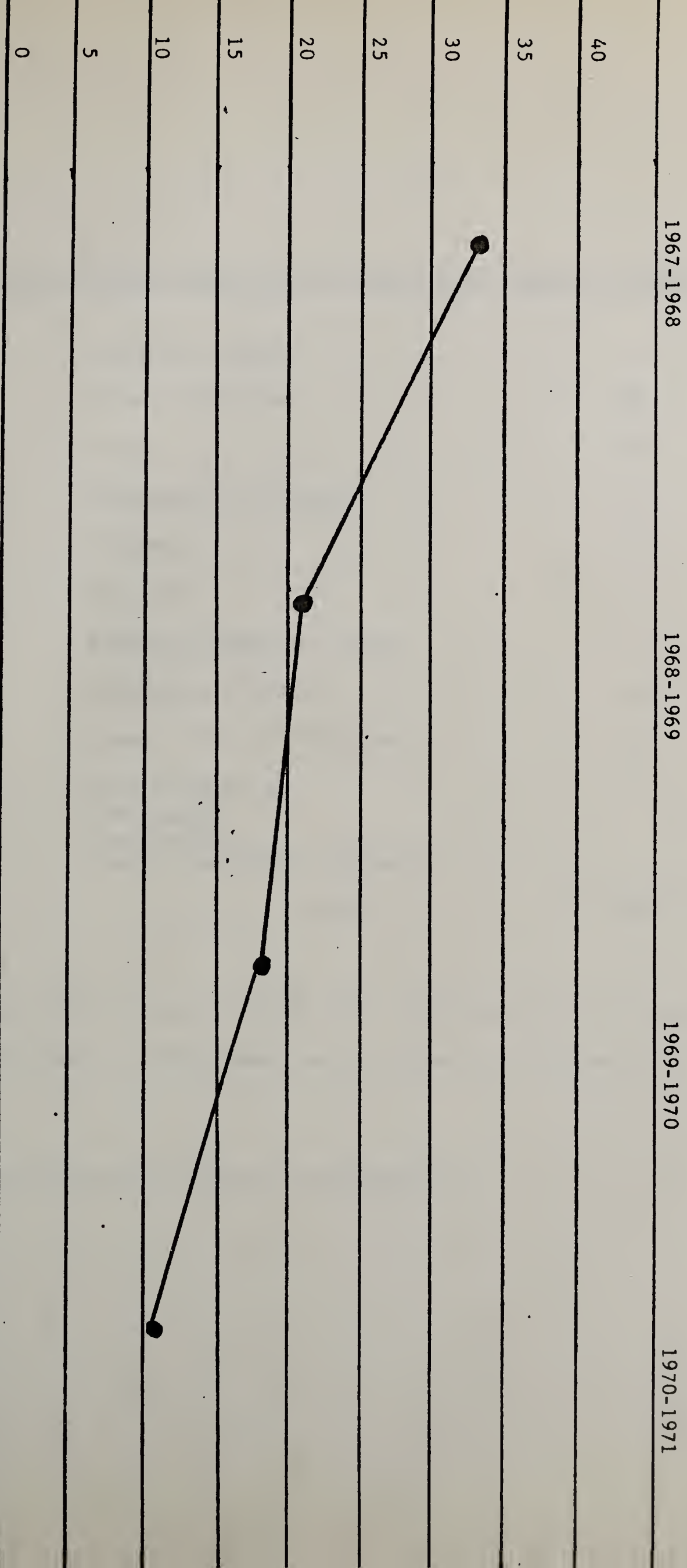
Use of fire		
Shooters sight		1
Use of weapon		
Carelessness & Inexperience	1	3
Unavoidable	<u>1</u>	<u>2</u>
TOTAL	2	9





HUNTING ACCIDENT ANALYSIS

July 1, 1970 - June 30, 1971



2 FATAL

9 INJURED



DEER KILLED OR INJURED OTHER THAN DURING THE REGULAR HUNTING SEASON\*\*

Natural Causes	1
Motor Vehicles	483
Dogs	218
Entangled in Fence	8
Trains	4
Drowned	5
Killed Damaging Crops	6
Illegally Killed	14
Cause of Death Unknown	16
Miscellaneous (untagged) (unclaimed) (not located by hunter)	6

TOTAL

---

761

All carcasses which could be used for food purposes were given to state institutions. All others were buried by the natural resource officer.

\*\*Except those mentioned under miscellaneous.



The following totals the activity of  
the officers of the division with reference  
to court cases and warnings:

Prosecutions      698

Convictions      502

Fines imposed:

Fiscal 1971 - \$21,845.00

Warnings:

Fiscal 1971 - 939.





INLAND Offense	No. of Complaints	Convicted & Penalized	No. lo Filed	Continued Dismissed	Filed	No Finding	Guilty File	Fines Imposed	Court Costs
Fishing without a license	99	90		2	2	2	3	\$1,265.	\$ 70.
Hunting without a license	21	17		3	1			385.	
Trespassing	8	8						50.	
False statement to procure a license.	2	1		1				25.	
Fishing on posted land	6	5			1			90.	
Failure to produce license visibly	9	5		1	3			125.	
Using more than two hooks	2	2						40.	
Fishing in closed season	10	6		1	3			110.	10.
Minor in possession of alcohol	7	3		4				75.	
Loaning license	3	1		1	1			10.	
Hunting with artificial light	13	4		7			2	2,000.	
Hunting with aid of motor- vehicle or motorboat	20	13	4	1			2	420.	75.
Possession of buckshot, shells, etc.	8	5	2	1				300.	
Possession of large rifle at night	12	12						600.	50.
Loaded shotgun on/in motor vehicle	48	32	3	9	1	1	2	1,085.	325.
Loaded shotgun on/in motor- boat	22	20	1	1					



## INLAND

Offense	Convicted		Continued		No Finding	Guilty File	Fines Imposed	Court Costs
	No. of Complaints	Penalized	No. Filed	Dismissed				
Illegal possession of deer	13	7		4	2		\$ 335.	\$ 70.
Hunting in closed season	24	15	2	7			1,075.	100.
Possession of protected birds	6	5		1			145.	
Unplugged shotgun	5	2	2	1			20.	50.
Possession of rifle on Sunday	6	6					145.	
Hunting too close to a road or dwelling	14	9		5			105.	
Resisting arrest	1			1				
Negligent use of a firearm causing bodily injury	1	1					100.	
Failure to wear fluorescent colors	17	12	2	3			190.	85.
Hunting in Quabbin	13	13					280.	
Altering a fishing license	2	1	1				20.	
Fishing other than angling	1	1					20.	
False statement to procure antlerless deer permit	3	1	1			1	50.	
Killing antlerless deer w/o permit	2	1		1			100.	
Failure to surrender license	2	2					40.	
Possession or use of illegal arrows	3						75.	





INLAND

Offense	No. of Complaints	Convicted & Penalized	No. of Filed	Continued Dismissed & Acquitted	Filed	No Finding	Guilty File	Fines Imposed	Court Costs
Illegal use of rifle	3	1		2				\$ 10.	
Fishing in a restricted area	8	8						130.	
Use of unregistered traps	2	2						40.	
Hunting on posted land	5	2		1	2			40.	
Littering	1			1					
Shooting protected birds	2	1	1					25.	
Hunting migratory birds after hours	16	15			1			150.	105.
Hunting after hours	15	12	1	1	1			225.	
Failure to display ammunition	2	2						40.	
Illegal possession of pistol or rifle during "deer week"	4	3						125.	
Possession of deer not open to view	1	1						20.	
Miscellaneous	49	40	1	5	3			250.	
TOTALS									
									<u>\$10,670.</u> <u>\$1,010.</u>



## MARINE

Offense	No. of Complaints	Convicted & Penalized	No. of Filed	Continued Dismissed & Acquitted	Filed	No Finding	Guilty File	Fines Imposed	Court Costs
---------	----------------------	-----------------------------	-----------------	--	-------	---------------	----------------	------------------	----------------

Lobstering without a license	16	11		2	2		1	\$ 210.	\$ 35.
------------------------------	----	----	--	---	---	--	---	---------	--------

Possession of short lobsters	71	44	10	2	6		9	4,735.	1,580.
------------------------------	----	----	----	---	---	--	---	--------	--------

Possession of egg lobsters	18	8	3			1	6	1,360.	100.
----------------------------	----	---	---	--	--	---	---	--------	------

Possession of lobster pots	3	1			2				
----------------------------	---	---	--	--	---	--	--	--	--

Molesting lobster gear	7	4		2	1			1,125.	
------------------------	---	---	--	---	---	--	--	--------	--

Digging clams in contaminated area	22	18	1		2		1	1,775.	
------------------------------------	----	----	---	--	---	--	---	--------	--

Dumping	6	5			1			400.	25.
---------	---	---	--	--	---	--	--	------	-----

Dragging	3	1		2				500.	
----------	---	---	--	---	--	--	--	------	--

Selling shellfish w/o wholesale dealer's certificate	5	2			3			35.	
--	---	---	--	--	---	--	--	-----	--

Failure to display lobster license	1	1						50.	
------------------------------------	---	---	--	--	--	--	--	-----	--

Dipnetting lobster	2	1			1			25.	
--------------------	---	---	--	--	---	--	--	-----	--

Possession of mutilated lobster	1	1						25.	
---------------------------------	---	---	--	--	--	--	--	-----	--

Failure to display lobster	2	1		1				100.	
----------------------------	---	---	--	---	--	--	--	------	--

Possession of unmarked lobster gear	3	1		1	1				
-------------------------------------	---	---	--	---	---	--	--	--	--

Transportation of untagged shellfish	4	1				3		50.	
--------------------------------------	---	---	--	--	--	---	--	-----	--



MARINE

Offense	No. of Complaints	Convicted & Penalized		Continued Dismissed & Acquitted		No Finding	Guilty File	Fines Imposed	Court Costs
		Penalized	No. of Filed	Acquitted	Filed				
Possession or transpor- tation of untagged lobster meat	7	3		1	3			\$ 550.	
Failure to display fish upon demand	1	1						100.	
Fishing on a fishway	3	3						40.	
Lobstering after hours	3	1			1		1	25.	
Illegal taking of quahogs	2	2						50.	
Illegal use of a motor- boat	4	1		2	1			10.	
Miscellaneous	3	1			2			10.	
TOTALS									
								<u>\$11,175.</u>	<u>\$1,740.</u>





LICENSES CHECKED

Fishing . . . . .	.65,816
Hunting . . . . .	.34,212
Lobstering . . . . .	4,091
Clammers . . . . .	4,148

Propagator's Permits Investigated - 227

Automobile Accident Investigation Reports - 22



BUDGET FOR FISCAL 1971

T NO. 1020-0000

REQUESTED

APPROPRIATION  
RECEIVED

ARY NO.

803,165

690,000

3,235

500

16,933

4,000

750

500

165

100

1,600

1,000

57,330

48,000

4,650

1,500

36,080

24,450

9,375

2,000

11,875

8,000

101,195

31,400

2,000

322,760

100,000

---

1,371,113

---

911,450



PATROL BOAT MARY CAROLINE

Complement: Six Officers  
Boatswains 2  
Boatmen 3  
Engineer 1

Patrol area in general extends from the New Hampshire state line to Cape Cod Bay. This defined area includes coverage of Ipswich Bay, Massachusetts Bay, Cape Cod Bay, and their various harbors.

Period covered: 7-1-70 thru 6-30-71

Miles cruised - - - - -	7358
Diesel fuel (gallons) - - - - -	7998
Diesel fuel cost - - - - -	1587.96
Lube oil (gallons) - - - - -	50
Lube oil cost - - - - -	95.72
Oil and fuel filters - - - - -	24
Oil and fuel filter costs - - - - -	36.00
Gasoline (gallons) - - - - -	278.2
Gasoline cost - - - - -	105.67

Costs:	Diesel fuel	\$1,587.96
	Lube oil	95.72
	Oil & Fuel Filters	36.00
	Gasoline	105.67
		<hr/>
		\$1,825.35

Approximate cost for gas driven generator \$14.00

Approximate cost for outboard motor 91.67





PATROL BOAT MARY CAROLINE

Summation:

Miles cruised - - - - -	7358
Vessels watched - - - - -	1234
Vessels hailed - - - - -	570
Vessels boarded - - - - -	496
Vessels seized - - - - -	0
Fishermen interviewed ashore - - - - -	285
Fishermen interviewed at sea - - - - -	590
Complaints received - - - - -	92
Complaints investigated - - - - -	92
Warned - - - - -	45
Arrests - - - - -	16
Active patrol days (days boat was underway) - - - - -	258
Inactive patrol days (days boat was not underway) - - - - -	107
Main engine tachometer hours 7/1/71 - - - - -	909
Main engine tachometer hours 6/30/71 - - - - -	1685
Annual underway hours registered by tachometer - - - - -	776
Annual estimated underway hours (hove too, etc.) - - - - -	1331

Inactive patrol days due to following causes:

Annual haulout - - - - -	17
Main engine repair and maintenance - - - - -	11
Weatherbound - - - - -	56
Authorized holidays, personnel not aboard Thanksgiving & Christmas	
General meetings office level - - - - -	3
Crew shortage - - - - -	3
Court - - - - -	2
Deck maintenance - - - - -	13

While boat was not underway a routine work program remains in effect by ships personnel in active duty patrol.

At various times enforcement measures were carried out ashore, sometimes with use of private car of a crew member.

Assigned patrols in helicopter from time to time daylight or dark along shoreline of the Commonwealth.



PATROL BOAT LULA MAY

Summary:

Miles cruised - - - - -	6835
Vessels watched - - - - -	686
Vessels hailed - - - - -	248
Vessels boarded - - - - -	181
Vessels seized - - - - -	0
Fishermen interviewed ashore - - - - -	237
Fishermen interviewed at sea - - - - -	322
Complaints received - - - - -	81
Complaints investigated - - - - -	80
Turned - - - - -	89
Arrests - - - - -	42
Active patrol days (days boat underway) - - - - -	198
Inactive patrol days (days boat not underway) - - - - -	167
Main engine tachometer hours 7-1-70 - - - - -	1296
Main engine tachometer hours 6-30-71 - - - - -	1946
Annual underway hours registered by tachometer - - - - -	650
Annual estimated underway hours (hove too, etc.) - - - - -	824
Inactive patrol days due to following reasons:	
Engine maintenance - - - - -	17
Deck maintenance - - - - -	12
Annual haulout - - - - -	



PATROL BOAT LULA MAY

Summary:

Boats cruised - - - - -	6835
Vessels watched - - - - -	686
Vessels hailed - - - - -	248
Vessels boarded - - - - -	181
Vessels seized - - - - -	0
Fishermen interviewed ashore - - - - -	237
Fishermen interviewed at sea - - - - -	322
Complaints received - - - - -	81
Complaints investigated - - - - -	80
Arrests - - - - -	89
Arrests - - - - -	42
Active patrol days (days boat underway) - - - - -	198
Inactive patrol days (days boat not underway) - - - - -	167
Main engine tachometer hours 7-1-70 - - - - -	1296
Main engine tachometer hours 6-30-71 - - - - -	1946
Annual underway hours registered by tachometer - - - - -	650
Annual estimated underway hours (hove too, etc.) - - - - -	824

Inactive patrol days due to following causes:

Engine maintenance - - - - -	17
Hull maintenance - - - - -	12
Annual haulout - - - - -	21
Weatherbound - - - - -	112 (ice bound 64 d
Out - - - - -	0
Meetings at office level - - - - -	0
Few shortage - - - - -	3

Authorized holidays, Thanksgiving & Christmas, no personnel aboard.

While Lula May not underway a routine work program remains in effect by  
city crew aboard.

Enforcement measures entails shore work checking landings of the lobster  
taggers.

From time to time helicopter assignment on day or night basis.

Sickness

Military leave





RECOMMENDED LEGISLATION

AN ACT PLACING ENFORCEMENT OFFICERS OF THE DIVISION  
OF LAW ENFORCEMENT IN THE DEPARTMENT OF NATURAL  
RESOURCES UNDER THE "HEART LAW", SO CALLED.

Chapter 32 of the General Laws is hereby amended by striking out section 94, as most recently amended by chapter 610 of the Acts of 1963, and inserting in place thereof the following section:

SECTION 94. Notwithstanding the provisions of any general or special law to the contrary affecting the non-contributory or contributory system, any condition of impairment of health caused by hypertension or heart disease resulting in total or partial disability or death to a uniformed member of a paid fire department or permanent member of a police department, or of the police force of the metropolitan district commission, or of the state police in the department of public safety, or of the capitol police, or of the public works building police, or to any employee of the registry of motor vehicles in the department of public works who entered the service of the registry as an investigator or examiner and performed police duty, or to any employee in the department of correction whose regular or incidental duties require the care, supervision or custody of prisoners, criminally insane persons or defective delinquents, or to any permanent crash crewman, crash boatman, fire controlman or assistant fire controlman employed at the General Edward Lawrence Logan International Airport, or to enforcement officers of the division of law enforcement in the department of natural resources, shall, if he successfully passed a physical examination, which examination failed to reveal any evidence of such condition, be presumed to have been suffered in line of duty, unless the contrary be shown by competent evidence.



### SUMMARY

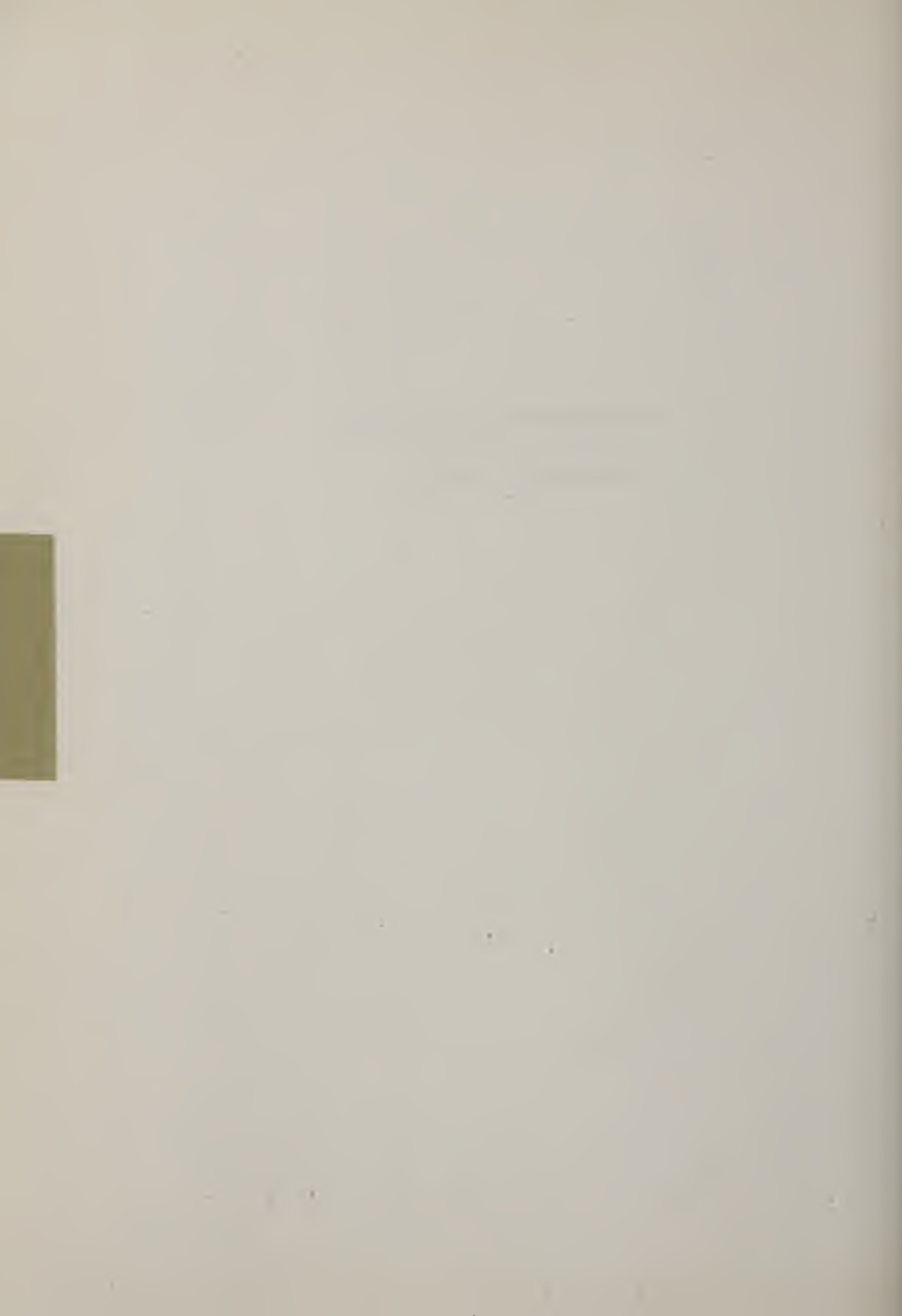
The Natural Resource Officer in the Division of Law Enforcement appears to be the only armed and uniformed officer with police authority who does not enjoy the benefits provided under the "Heart Law" so called. Exposure, fatigue and long and unusual hours of work are required of a group of dedicated men who serve without benefit of such legislation.

The functions and duties require their enforcement and investigative authority be exercised throughout the Commonwealth in all matters relating to natural resources violations; whether it be the boarding of commercial fishing vessels at sea or the apprehension and prosecution of deer jackers operating in our woodlands during the night time. The routine duties including arrests and the conducting of searches for lost persons are of such a nature that they necessarily require considerable physical exertion to accomplish the assigned task. No single group of men included in the present day statute (Chapter 32 of the G.L. s 94) are as deserving of this legislation as would be the Natural Resource Officer.



DIVISION OF MARINE FISHERIES

Frank Grice, Director





## REPORT OF THE DIRECTOR

Fiscal year 1971 proved to be a year of significant changes in the Division of Marine Fisheries. A completely new licensing system was implemented after the passage of House Bill 5716 which became Chapter 861 of the Acts of 1970. This legislation was largely the result of the efforts of the Special Commission Relative to Increasing the Revenue of the Marine Fisheries Fund which met actively for over two years and subsequently endorsed the concept of the licensing system embodied in Chapter 861.

This Commission, consisting of legislative members from both the House and Senate, the Marine Fisheries Advisory Commission, the Commissioner of Natural Resources, the Director and three other members appointed by the Governor, thoroughly explored the needs and potential sources of income for the Division. The fact that the Division receives no General Fund income and is therefore dependent on other sources was a major factor in the Commission's decision to raise commercial permit fees to provide approximately \$150,000 in additional income to the Fund.

On January 1, 1971 the new licensing system went into effect and by the end of the fiscal year it was apparent that income from permit fees had increased by over \$100,000 compared to the same six month period for the previous year.

In addition to the new income to the Fund, Chapter 861 provided the Division with the opportunity to completely revise and up-date its licensing procedures. New IBM card forms with a detachable license portion were developed which replaced a very complicated and expensive five-copy paper license and separate application form. Although many minor problems and difficulties with the new application forms became apparent after their adoption on the whole the system worked well and with minor changes scheduled for next year we should have an efficient system.

The coho salmon project, approved and started last fiscal year, resulted in the initial stocking of yearlings or smolts in the North River in April of 1971. Further details on this on-going experimental program are discussed under the Bureau of Sport Fisheries section of this report.

A commercial fisheries extension service was implemented during the year under a contract with Charles Martin, formerly Assistant Director of the Division. Individual port agents are located in the Gloucester, Boston and New Bedford areas and are providing a variety of extension services to the various segments of the industry. All of these agents have extensive backgrounds in the commercial fisheries field and have been well received by fishermen, boat owners and processors.

During the past two years, I have had the opportunity to act as an Advisor to the International Commission for the Northwest Atlantic Fisheries (ICNAF) and have attended many meetings called by the National Marine Fisheries Service to discuss the problems of our offshore fisheries. During this interim it became obvious to me that the international controls available to ICNAF to conserve and manage the fish stocks in these international waters were not capable of protecting the resource from serious over exploitation.



By the spring of 1971 it was clear that haddock stocks had been so over-fished that there was a real possibility that the population might not ever regain its former size. It was also apparent that herring stocks had been reduced by 90 to 95 percent of their former abundance and that the foreign fleets were switching from one species as it was depleted to another in a relentless pattern of over-exploitation.

To allow such a resource depletion to occur is ecologically irresponsible. In this time of concern over our environment and its living resources it is unthinkable that we should stand mute while this tragedy occurs. In the absence of adequate control by the international community it is the obligation of any responsible fisheries agency to insist that reasonable conservation measures be brought to bear immediately, before these valuable protein sources are lost to future generations.

The Division of Marine Fisheries and the Department of Natural Resources has therefor launched a concerted and determined effort to awaken the public, Congress and the Administration in Washington to the seriousness of this resource crisis. We will continue to accept our responsibilities as fishery resources managers to bring national control to the utilization of these stocks off our coast.





## REPORT OF THE MARINE FISHERIES ADVISORY COMMISSION

In fiscal 1971 the membership of the Marine Fisheries Advisory Commission was as follows:

Frank Bachoff		Rockland
Robert Barlow	Chairman	Marshfield
Charles Fields		Rockport
George Gleason		Gloucester
Leonard Healy		New Bedford
* Paul Jacobs		Belmont
John Lamie	Vice Chairman	Dorchester
Henry Lyman		Canton
Austin Skinner	Clerk	Fairhaven
John Worthington		Truro

\* Resigned in 1970

The MFAC held five regular meetings and two public hearings during the year. Attendance at all of these meetings was excellent with a quorum of at least five members always present and usually eight or nine in attendance.

The first public hearing was held in Scituate on March 4, 1971 to consider proposed regulations on coho salmon in the North River and coastal area. The proposed regulations were discussed by the Division staff and then the audience was requested to state their views or questions on the proposal. The approximately 45 people in attendance asked many questions and voiced approval of the proposals. Chairman Barlow asked for a show of hands by those in favor of the proposed regulations and 34 were in favor and none opposed.

After the close of the hearing the Commission voted unanimously to adopt the regulations under Chapter 17A with regard to the manner, legal size, season, quantity and closed areas governing the taking of coho salmon from the coastal waters of Massachusetts.

The second public hearing was held in New Bedford on March 25, 1971 to consider proposals on the establishment of a minimum landing size for yellowtail flounder for the Commonwealth. This hearing was held at the request of the New Bedford Fishermen's Union because of their concern over the serious decline in yellowtail abundance in the last year or two.

The Division presented evidence on the biology of yellowtail flounder and advocated that a landing size be adopted for both conservation and economic reasons. Dr. Bradford Brown of the National Marine Fisheries Service also presented evidence on the desirability of harvesting only the larger, mature flounders. Considerable opposition to a Massachusetts landing size limit was voiced by several dealers and processors present who claimed that they needed the right to bring in smaller flounders landed out of state to supplement their declining supply from the New Bedford boats.

At a subsequent meeting of the Commission on April 1, 1971 the members voted to adopt the proposed landing size regulation on yellowtails with seven in favor, none opposed and one abstaining.





Based on this vote the regulation was drafted and sent to Commissioner Brownell for his approval as required by Section 17A of Chapter 130. In view of continued opposition by the New Bedford processors and fish cutters, the Commissioner called for a special meeting of the Advisory Commission on May 26, 1971 when it was agreed by a majority of the members that implementation of the proposed regulation would be delayed until the end of the summer of 1971. This delay was to allow the Division to contact other states where yellowtails are landed in an attempt to get them to impose similar landing size limits and also to find out what further ICNAF regulations would be imposed on the fishery for 1972.

During the fiscal year a regulation previously voted by the Commission, to prohibit the taking of anadromous fish other than alewives by snagging, was adopted and put into effect on September 1, 1970.

The Advisory Commission continued to be an active participant in the Commonwealth's effort to manage and enhance the fishery resources. The unpaid membership is to be highly commended for their contribution of free time to this effort.

Robert Barlow  
Chairman



# BUREAU OF ADMINISTRATION

During fiscal 1971 the Division of Marine Fisheries employed 71 persons in the following categories:

Administrative	7
Scientific	25
Technical	5
Labor	12
Clerical	13

The 1971 fiscal budget for the Division was \$1,138,276.00 administered under the following accounts:

Administration	1040-0000	\$315,300
Marine Fisheries Advisory		
Commission Expenses	1040-0001	1,500
Shellfish Restoration,		
Buzzards Bay	1040-0011	200,000
Patrol Boat	1040-0050	105,000
Cat Cove Marine Laboratory	1040-0100	32,950
Estuarine Research	1040-1311	116,680
Shellfish Treatment Plant	1040-1341	60,011
Shellfish Assistance to		
Cities and Towns	1040-1361	22,000
Commercial Fisheries		
Statistics	1040-1372	21,000
Flounder Investigations	1040-1373	23,835
Coordination of Commercial		
Fisheries and Research	1040-1374	38,000
Consumer Education and		
Market Development	1040-1375	120,000
Anadromous Fisheries		
Investigations	1040-1376	20,000
Shellfish Extension	1040-1377	12,000
Commercial Fisheries		
Extension Service	1040-1383	50,000

The following types and numbers of licenses and permits were issued during Calendar 1970:

Lobster - crab fishing	7,481
Bed Certificate	1,233
Bait Certificate	336
Master Digger	18
Subordinate Digger	98
Digger's Shellfish, shipping	4
Dealer's Shellfish, shucking	216
Dealer's Shellfish, no shucking	642
Dealer's Shellfish, Shipping	21
Wholesale Fish Dealer	338
Lobster - Crabmeat Permit	226
Special Permits	105
Duplicate Licenses	61





Division personnel investigated 122 coastal alteration projects during fiscal 1971. Twenty-five studies and reports were coordinated with the U. S. Fish and Wildlife Service on projects in coastal areas. Project referrals from the U. S. Army Corps of Engineers (110) and the Massachusetts Division of Waterways (79) were reviewed and acted upon. Ten projects of studies were received from the Massachusetts Department of Public Works and three from the U. S. Coast Guard.

Division biologists assisted the Division of Conservation Services with Coastal Wetlands Protection Act applications in Duxbury, Marshfield, Wellfleet, Eastham, Orleans and Chatham. Restrictions were recorded for the towns of Salisbury and Newbury. Approximately 30,000 acres of marshes, intertidal flats and beaches were restricted or in the process of being restricted during fiscal 1971.

The effectiveness of the coastal wetlands acts (Chapter 130, Sections 27A and 105) has been amply demonstrated during calendar 1970. After Departmental project modification, less than 20 acres of saltmarsh were lost to development. Of that total less than five acres was considered to be prime, productive saltmarsh.

#### RULES AND REGULATIONS

The following rules and regulations were adopted during fiscal 1971:

Rules and regulations adopted under the provisions of General Laws Chapter 130, Sec. 17A with regard to the manner, legal size, season, quantity and closed areas governing the taking of Coho salmon Oncorhynchus kisutch from the coastal waters of Massachusetts;

Rules and regulations to prohibit the taking of anadromous fish other than alewives by snagging.

#### LEGISLATION

##### ACTS OF 1970 (Passed after 7/1/70)

Chapter 861	Relative to the issuance of certain permits and certificates by the Division of Marine Fisheries and to the fees charged therefor.
-------------	--

##### ACTS OF 1971

Chapter 133	Further defining the word scallop and increasing the penalty for certain violations relative to the sale of scallops.
Chapter 442	Further regulating the issuance of certain commercial fishermen permits.





## LITERATURE

- Beals, R. W. 1970. 1969 Massachusetts Coastal Lobster Fishery Statistics. Mass. Div. of Mar. Fish., Technical Series No. 5, 19 pp.
- Chesmore, Arthur P., S. A. Testaverde and F. P. Richards. 1971. A Study of the Marine Resources of Dorchester Bay. Mono. Ser. No. 10. Mass. Div. of Mar. Fish.
- Curley, John R., R. P. Lawton, J. M. Hickey and J. D. Fiske. 1971. A Study of the Marine Resources of the Waquoit Bay-Eel Pond Estuary. Mono. Ser. No. 9. Mass. Div. of Mar. Fish. In press.
- Fairbanks, Randall B., W. S. Collings and W. T. Sides. 1971. An Assessment of the Effects of Power Generation Upon Marine Resources of the Cape Cod Canal. New England Gas & Electric Co. In press.
- Morrissey, Thomas D. 1971. Movements of Tagged Lobsters, Homarus americanus, Liberated off Cape Cod, Massachusetts. Trans. Amer. Fish. Soc. Vol. 100, No. 1, pp. 117-120.



## BUREAU OF COMMERCIAL FISHERIES

Despite a relatively successful financial year the Massachusetts Commercial fishing industry is entering its most perilous and crucial period since its inception in colonial times. In fact, the short term financial success incurred by the industry was created by the most pressing of the many problems currently facing the industry -- rapidly declining stocks of commercially important fish species. Other acute problems currently facing the industry include the deterioration of our fishing vessels, increased competition for both fish stocks and economic markets from foreign nations, and the inability of the industry to develop or employ new technological methods.

Since the Division's reorganization in 1969, the Bureau of Commercial Fisheries has endeavored to develop and carry out programs designed to alleviate these specific problem areas.

A Commercial Fisheries Extension Service was initiated in February. Overall objectives of this program are to provide on-site technical advisory services, disseminate pertinent information and establish avenues of communication between fishing industry and research groups.

The Extension Service has been designed to improve the overall economic posture of all segments of the Commonwealth's fishing industry. Extension agents have been stationed in Gloucester, Boston and New Bedford. Initial response to the program indicates that it will be extremely successful and beneficial to the industry.

The Consumer Education and Market Development Program attempts to educate and inform volume users and distributors of seafoods about Massachusetts fish and shellfish to improve market conditions for Bay State Fishery Products.

Several informative booklets prepared under this project have either been completed or are in process. They include: "How to Cook and Serve Fresh Seafoods"; "12 Ways to Eat More and Weigh Less"; "Modern Packaging of Fresh Fish"; "How to Handle and Protect Fresh Seafoods". Quarterly publication of the "Massachusetts Fisherman", a newsletter to the fishing industry, was continued.

A special project exhibit was displayed at the Fish Expo in Tampa, Florida, and at the Hotel Restaurant Show in Boston.

A product acceptability survey was done on whiting to determine the reasons for an existing supply-demand imbalance in cold storage holdings. Results were disseminated to the whiting industry.

New product development studies were made on mackerel and ocean quahogs.





The statistical program is carried out under provisions of Public Law 88-309 in cooperation with the U. S. Department of Commerce, National Marine Fisheries Service.

Primary concerns of this program are the compilation, evaluation and dissemination of commercial fisheries statistics, notably for Massachusetts' coastal lobster-crab, weir-trap, alewife and shellfish fisheries. Weir-trap fisheries statistics are compiled in cooperation with the National Marine Fisheries Service. Other data is collected with the cooperation of fishermen, dealers and shellfish officers of coastal cities and towns.

The transaction-slip program for the collection of catch statistics for all commercial coastal fisheries is progressing well. Dealers complete a record of any purchase of marine resources on special quadruplicate forms provided by the Division. The dealer gets two copies for his records, the seller one copy, and the fourth copy is picked up early each month by division personnel, providing a current record of the harvest and sale of Massachusetts marine resources previously unavailable.

Data is summarized by species and their value, by counties, and forwarded to the National Marine Fisheries Service for inclusion in their monthly publication "Massachusetts Landings".

Detailed statistics may be found in the appended tables.

The Shellfish Technical Assistance Project was designed to assist and advise cities and towns, agencies and individuals on matters relating to shellfish culture, management and harvest.

Technical assistance relating to management and propagation, resource surveys and environmental quality monitoring was provided for 49 coastal cities and towns, 10 agencies and 6 individuals.

Special consideration was given to: a cooperative management program co-sponsored by two towns; continued monitoring of an important shellfish area seriously contaminated by fuel oil, monitoring a serious shellfish disease in Wellfleet, and certain shellfish transplants.

Consideration was also given to the coordination of a statewide sampling program to determine mercury concentrations in shellfish, a major sea clam and mahogany quahog survey, an aquaculture-related statute review, and to making recommendations regarding allotments of state shellfish assistance monies.

A technical program for the annual convention of the Massachusetts Shellfish Officers' Association was arranged and moderated, and five by-monthly newsletters were prepared and widely distributed to interested persons.

The shellfish purification plant in Newburyport processed 9,674 bushels of shellfish during calendar 1970, operating at a deficit of \$47,052.65 with this amount apportioned on a use-basis among cities and towns from which moderately contaminated shellfish were dug by master and subordinate diggers. The deficit represents an increase over that for 1969, mainly due to overall increased costs, the addition of one employee and the increasing need for building maintenance.





The volume of shellfish processed had declined steadily from 1951 through 1968. In 1969 and 1970 there was an increase over that of the previous years, possibly due to several factors; a marked production decrease in certain Maryland areas, increased demand for Massachusetts soft clams and the opening of productive areas in Boston Harbor as a result of improved water quality. Hopefully, this trend toward cleaner waters will continue.

Raw and treated shellfish samples were provided to a Tufts University Environmental Health graduate student for studies concerning Salmonella (causative agent of human enteric food poisoning) in shellfish and evaluating shellfish as a means of determining water quality.



## BUREAU OF RESEARCH

Two estuarine research teams function within the Division, one on the south shore, the second on the north shore.

The north shore team completed an intensive 12-month field investigation of Hingham Bay in December and began a similar study of the Plymouth-Kingston-Duxbury area in January.

A manuscript entitled "A Study of the Marine Resources of Dorchester Bay" was submitted for publication. Manuscripts are being prepared for "A Study of the Marine Resources of Lynn-Saugus Harbor" and "A Study of the Marine Resources of Essex Bay".

North shore estuarine team personnel participated in ground fish surveys from Cape Hatteras to Nova Scotia during October and November, at the request of the National Marine Fisheries Service.

Team personnel provided assistance to the Division of Conservation Services in field investigations and meetings relative to coastal alteration projects in northern coastal communities. They also took part in several exhibits at various shows, and attended numerous meetings on marine fisheries matters.

On the south shore, the estuarine team completed field investigations of the Taunton River estuary, initiated investigations of the Bass River Estuary, and neared completion of a manuscript "A Study of the Marine Resources of Wellfleet Harbor". A Manuscript entitled "A Study of the Marine Resources of the Waquoit Bay-Eel Pond Estuary" was in press.

Team personnel participated in the preparation of U. S. Soil Conservation Service Natural Resource Inventories, investigation of four fish kills, a technical writing course, picking up weigh-out transaction slips for the statistical section, and a research cruise aboard the Delaware III, testing lobster, shrimp and fish traps offshore. Team members also attended many meetings regarding marine fisheries.

Personnel of the Power Plant Investigation team completed a report entitled "An Assessment of the Effects of Power Generation Upon Marine Resources of the Cape Cod Canal". It is currently in press.

Studies continued at the site of the nuclear generating station under construction at Rocky Point, Plymouth, under a grant from the Boston Edison Co. The program includes studies of: fish distribution; lobster movement and growth; the lobster catch and the local Irish moss harvest; benthic flora and fauna; plankton distribution and composition; collection of hydrographic data.

Laboratory studies conducted under contract are primarily directed toward the determination of temperature and chlorine tolerance of indigenous fauna and Irish moss.

The data compiled on the Rocky Point project will be used as a basis for detecting and evaluating any effects of power plant operation upon marine resources of the area. The facility is scheduled to commence operation in the fall of 1971.





A cooperative tagging study, begun in 1969 with the National Marine Fisheries Service, was continued by coastal lobster investigations personnel. Lobsters were tagged at five locations between Chatham and Provincetown to determine the origin and destination of a population of lobsters that seasonally concentrate in that area. A total of 283 tags were received by the end of December 1970, primarily from inshore areas north and west of the tagging sites, with some received from offshore grounds between Lydonia and Block Canyons.

A study of the distribution and abundance of northern shrimp, Pandalus borealis, in the inshore waters of Massachusetts was instituted during the year to determine the potential for development of a small boat winter fishery in nearshore areas. Exploratory winter fishing with a small try net in Cape Cod Bay and the southern edge of Massachusetts Bay produced small quantities of commercial sized shrimp at eight of the nine stations established in that area.

Winter flounder investigations were directed towards continued efforts to estimate the extent of recruitment of estuarine produced winter flounder to the offshore commercial fishery. Most tags returned have come from within Nantucket Sound, with some from as far away as Highland Light, Truro, and Southern Nantucket Shoals. An additional 608 recruitable fish were tagged in the Spring of 1971.

Spawning activities of winter flounder were monitored in Nantucket Sound. Eggs and larvae were sampled with a benthic plankton sled on shoal grounds. Sampling with a beam trawl from August to October yielded only one young-of-the-year fish. The benthic sled saw modified to allow the taking of quantitative samples. Possible transport of eggs and larvae from the estuaries to the sampling areas by currents is now being investigated.

Results of a study of flounder population units, utilizing fin ray counts of young-of-the-year winter flounder from different estuaries generally confirm the existence of at least two population groups.

At the Division's lobster hatchery and research station on Martha's Vineyard, large female lobsters from the deep sea offshore ground were the source of the 1,200,000 fry hatched there during the fiscal year. The resulting bottom-crawling lobsters were released in Massachusetts waters.

Experimental studies to develop an economically feasible lobster culture industry were continued. Increased water temperatures have apparently accelerated growth substantially. Conditioning of egg-bearing females in temperature controlled baths has resulted in hatching of eggs throughout the year, while experiments to fertilize lobsters by artificial insemination were also conducted.

Selective breeding of <sup>color</sup> floor mutants continued, with fast growing progeny selected to develop a population that will reach commercial size in a shorter time.

Hatchery personnel conducted a course to instruct Division of Law Enforcement personnel in detecting lobsters whose eggs have been illegally removed by other than natural means.

The National Science Foundation has awarded a sea grant to the Division and the University of California to study "The Culture, Selective Breeding and Genetics of the Lobster, Homarus americanus".





The Cat Cove Marine Laboratory in Salem was accepted for use and occupancy during the fiscal year. The Division's only new facility, it consists of a modern marine laboratory, shellfish culture pier and maintenance shed, and is situated on a tidal basin with a dike and control structure.

Laboratory personnel have been primarily concerned with the problems involved in outfitting the facility with office equipment, and setting up and evaluating necessary laboratory equipment, as well as overseeing final construction operations.

Laboratory operations will be divided into three research phases; the application of hatchery techniques for fish and shellfish studies; research applied toward solutions to problems or questions associated with various division projects; fundamental research related to marine fisheries of the Commonwealth in general. The laboratory will eventually have the capability for conducting routine biological, chemical and bacteriological analysis and research.

Cat Cove Marine Laboratory also houses the personnel and equipment of the North Shore Estuarine Team.

The Division's 50' research vessel, the F. C. Wilbour, was widely used by various project personnel as a useful tool in their research. Vessel use included otter trawl tows for finfish, quahog sampling with a bottom dredge, surface plankton and larvae tows with metered nets, bottom fauna tows with sled samplers, and service for research buoys and lobster tagging.

Two maintenance haul-outs were made, and crew members helped design and build a shrimp trawl and a mid-water trawl.



## BUREAU OF SPORT FISHERIES

The major emphasis of the Division's sport fisheries program during the past year has been on the enhancement, re-establishment and introduction of anadromous fish in our coastal waters.

Coho Salmon In the first week of April, 60, 942 coho salmon averaging 5.5 inches in length were released in the Indianhead River, a tributary of the North River which flows into Massachusetts Bay in the Scituate-Marshfield area. The salmon were hatched from eggs that came from the Green River in the State of Washington. The eggs were hatched in Massachusetts at the Berkshire Fish Hatchery in cooperation with the Izaak Walton League of America, Berkshire Chapter. Final rearing until time of planting was done at the Massachusetts Division of Fisheries and Game hatchery in Palmer.

The young salmon readily adapted to the river environment and quickly learned to feed on all forms of aquatic insects. Although schools of coho's were observed in the lower portion of the North River throughout May many remained in the fresh water portion of the river system until the last week in May when water temperature reached 60°F.

It is expected that the salmon will forage in the ocean until the fall of 1972 when the survivors should return to the river on their spawning run. The fish should reach a size of approximately 15" by late summer of 1971 and become available to sport fishermen. Because of the relatively small number of salmon available, the sport catch should be light with most of the coho's being caught incidental to other types of the fishing activity. However, in order to provide adequate protection for the limited stock, rules and regulations governing minimum size, limits, method of taking and seasons were adopted.

Another 100,000 eggs were purchased from the Washington Department of Fisheries in January, 1971. The eggs were hatched and the young salmon will be raised at the Palmer Hatchery until the Spring of 1972 when they will be released in the North River.

American Shad Approximately 1,092,400 shad eggs were planted in the Taunton River system. This was the third annual plant of fertilized eggs in the Division's program to re-establish this species in that river. The eggs were taken from Connecticut River shad at Holyoke, Massachusetts. In addition to the planting in the Taunton River, 436,700 eggs were placed in the Charles River at South Natick. This was the first such planting in the Charles River and is part of the comprehensive program to rehabilitate the Charles River and its associated resources. In an extensive survey of the river the Division determined that there is considerable spawning area for shad and the river is capable of supporting a run of 28,000 adult shad.

Alewives Fifteen ponds were stocked with a total of 54,000 adult alewives as part of the Division's on-going program to maintain and improve the Commonwealth's runs of these important bait and forage fish.

The cities and towns of the Commonwealth were advised that any Special Acts that had been passed granting the towns local control of the alewife fishery were not valid under Section 104 of Chapter 130, G. L. They were further advised that if they desired to retain local control they should act in accordance with Sections 93 or 94 of Chapter 130, G. L. which establishes the procedure and authority for local control. By taking this action, the Division has set up the basis for reasonable control of our alewife fisheries based on modern laws and management requirements.





Fishway Construction. A new Denil-type fishway and a barrier dam was constructed on the Indianhead River, Pembroke-Hanover, to replace an old weir-pool type fishway that was in disrepair. The new fishway was designed to pass shad as well as alewives and will open up another mile and one half of the river for shad fishing and will more than double the available spawning area.

A barrier dam was constructed at the base of the fishway on the Jones River at Elm Street, Kingston. This dam will improve the operation of the fishway by directing more fish into it.

A new weir-pool fishway was constructed at First Herring Brook, Scituate, to replace an older non-functioning structure.

Sport Fishery Survey. Sampling was completed on a one year survey of our coastal sport fishing. The survey, designed by Mr. Glen Piehler of the Massachusetts Cooperative Fishery Unit and conducted jointly by the Unit and the Division, utilized a stratified random sampling technique to obtain data on the number and economic impact of Massachusetts saltwater fishermen. This data is now being analyzed and when completed will become a significant input into the formulation of the Division's sport fishery programs.

Cooperative Fishery Unit. The Division contributes \$10,000 annually to the Massachusetts Cooperative Fishery Unit at the University of Massachusetts to assist in the training of graduate students in fisheries research and to carry out research projects of benefit to the Commonwealth. During 1971 three doctoral students completed their training and research on marine oriented work.

#### Pesticide effects on Winter Flounder

The effect of various pesticides on the survival of winter flounder were examined. Because of the basic nature of the research much of the results are still indefinite; however, certain pesticides commonly used in Massachusetts were shown to severely reduce reproduction and survival of larvae. Although no longer funded by the unit or the Division, the researcher plans to carry on his most significant work under post doctoral fellowships.

#### Seasonal Utilization of Food by Juvenile Winter Flounder

This study followed the energy flow of a Massachusetts estuary with regard to winter flounder. As a result of the study, Division biologists and others will have a better understanding of the contribution of the estuarine environment on the life history of various fishes, but particularly the winter flounder, and will be in a better position to evaluate the effects of changes in the estuarine area.

Inventory of Marine Sport Fishermen. This study provided the basis and was the primary source of the Sport Fishery Survey described in the previous paragraphs.





Informational and Public Contact Programs. Division personnel regularly attended sportsmen's meetings for the purpose of explaining Division programs, assisting the groups in their activities, and for the answering of questions and inquiries on various subjects of interest to the salt water sportsman. More than 100 meetings were attended and included the regular monthly meetings of the Barnstable, Bristol, Essex, Norfolk and Plymouth County Leagues of Sportsmen Club, the Massachusetts Council of Sportsmen Clubs and the Massachusetts Alliance of Salt-water Sportsmen.

Exhibits were prepared and manned by the Division for the Mid-Cape Sportsmen's Show, Hyannis; South Eastern Massachusetts Sportsmen's Show, Wareham; Environmental Display - Burlington Mall, and the Topsfield Fair, Topsfield. The Division also manned a section of the Department's exhibit at the New England Sportsmen's and Camping Show, Boston. The number and type of inquiries received at these exhibits indicates a great need for expansion of the Division's and Departments efforts in information-education since generally the average citizenry is poorly informed, or even misinformed, of the Commonwealth's commitment and efforts in the field of marine fisheries and natural resources in general. /v



Table 1

## Summary of Coastal Lobster Fishery Statistics for 1970\*

## Fishermen Licensed:

Potmen	4,180
Divers	2,272
Diver-Potmen	865
Helpers	164
	<u>7,481</u>

Licensees Reporting	7,181	(95.9%)
---------------------	-------	---------

---

## License Holders Fishing in 1970:

Potmen	2,863
Divers	1,398
Diver-Potmen	218
	<u>4,479</u>

---

## Gear:

	<u>Number</u>	<u>Value</u>
Pots	152,260	\$ 1,294,008
Diving		234,554
Boats	2,890	<u>3,492,867</u>
		\$ 5,021,429

---

## Lobsters Landed:

	<u>Number</u>	<u>Pounds</u>	<u>Value</u>
Commercial	2,784,261	3,538,717	\$3,808,480
Non-commercial	167,044	242,059	
	<u>2,951,305</u>	<u>3,780,776</u>	<u>\$3,808,480</u>

---

\* Based on Fishermen catch reports.



TABLE 2

1970 MASSACHUSETTS WEIR, TRAP AND POUND NET LANDINGS  
BY SPECIES AS REPORTED BY FISHERMEN

<u>SPECIES</u>	<u>POUNDS</u>	<u>VALUE</u>
Blackback Flounder	3,833	\$ 375
Bluefish	19,783	2,128
Bonito	8,706	1,307
Butterfish	4,909	1,152
Cod	18,335	2,080
Fluke	642	293
Herring	390,810	8,971
Herring, bait	22,400	1,210
Mackeral	2,031,466	127,141
Mackeral, bait	291,950	19,624
Mackeral, trash	18,000	1,620
Menhaden	136,785	2,087
Pollock	47,053	588
Salmon	25	7
Sardines	294,590	11,811
Sea Bass	534	251
Scup	24,574	10,701
Shad	528	79
Squid	170,819	14,083
Striped Bass	109,673	37,933
Tautog	9,162	458
Tuna	90,956	26,332
Whiting	17	1
<u>Totals</u>	<u>3,695,550</u>	<u>\$ 270,232</u>





Table 3

1970 Weir, Trap and Pound Net Fishery Statistics \*

<u>Item</u>	<u>Number</u>
People employed	57
Boats	18
Dories	45
Weir Nets	26
Floating Traps	24
Seines	4

\* Based on fisherman reports.

Table 4

1970 Shellfish Fishery Statistics \*

Licenses Issued by Cities and Towns

Resident Family Permits	36,127
Non-Resident Permits	8,665
Commercial Permits	3,112

CATCH IN BUSHELS

<u>Species</u>	<u>Family</u>	<u>Commercial</u>	<u>Total</u>
Quahog	34,080	97,137	131,217
Soft shell clam	22,365	34,359	56,724
Oyster	2,991	1,980	4,971
Bay scallop	28,828	156,862	185,690
Coastal Quahog	8	335	343
Razor clam	107	135	242
Mussels	736	9,482	10,218
Sea Clam	2,804	7,861	10,665
Number of People Engaged in Fishery	43,728	2,896	46,624

As reported by 41 of 47 shellfish officers of coastal cities and towns.



TABLE 5

Number of Bushels of Clams Processed at the Newburyport  
Shellfish Purification Plant for the Year 1970

<u>Town or City</u>	<u>Bushels Produced</u>	<u>Per Cent of Total</u>	<u>Assessment</u>
Ypswich	7.0	0.072358	\$ 34.05
Gloucester	201.5	2.082902	980.06
Saugus	3.5	0.036179	17.02
Revere	1499.0	15.495141	7,290.87
Boston	4376.0	45.234649	21,284.10
Quincy	2535.0	26.204258	12,329.80
Neymouth	946.5	9.783956	4,603.61
Hingham	95.5	0.987182	464.50
Hull	<u>10.0</u>	<u>0.103369</u>	<u>48.65</u>
	9674.0	99.999994	\$ 47,052.65

Total expenditures to 31 December, 1970: \$ 56,726.65  
 Total Bushels produced at \$1.00 per Bushel 9,674.00  
 Deficit: \$ 47,052.65





Division of Mineral Resources

Robert Blumberg

Director



## INTRODUCTION

The Division moved in several directions during the fiscal year 1971. Messrs. Blumberg and Wilkins were introduced to the Massachusetts Commission on Ocean Management. Rules and regulations for the extraction of marine mineral resources received a good deal of the Division's time and effort. There was an expanded interest and shift in emphasis from the marine environment to the coastal zone environment. Arrangements were made and funds reserved for the first part of an ecological impact study. Director Blumberg was assigned the job of reviewing departmental legislation and keeping track of all bills of interest as they progressed through the legislative process. Field Representative, Joe Jackimovicz, started compiling a coastal zone atlas. Assistant Richard Wilkins began drafting environmental impact matrices and offered assistance to the Southeastern New England study and the Arts Environmental Semester Outline.

## MACOM

The staff was introduced to the Commission during the month of July. Since then the Commission has met four times to discuss a wide variety of marine-oriented activities. Some of the more important topics are:

- (1) S2802, one of the coastal zone management bills pending before the United States Congress, was closely followed by the staff. Progress was reported to the members of the Commission until Congress adjourned. The bill was not enacted.
- (2) Massachusetts Senate Bill No. 737, a bill for the conservation



of mineral resources within the Commonwealth's marine environment, was frequently discussed. The Commission came out in full support of this bill, and conveyed a letter to the State Legislature so stating. The bill has passed both houses and is presently before the Governor for his signature.

- (3) Recommendations from Governor Sargent's Conference on Massachusetts' Stake in the Ocean were reviewed and found to be approximately 70% complete. Although many of the recommendations forwarded by the panel on Geological Industries were not acted upon, this Division has, and continues to take an active role in seeing them through.
- (4) Critical to the orderly management of the marine environment is the delineation of the Commonwealth's lateral marine boundaries. It has yet to be resolved with the State of Rhode Island although the Commission has moved to urge those responsible for arranging a mutually agreeable boundary to act soon. The Commission feels that negotiations for this boundary would be far easier during times when no pressure is on either state to make land claims, and it will continue to urge for any progress toward solving this problem in the upcoming year.
- (5) The Commission consulted directly in the drafting of a Coastal Zone Management Bill for the State entitled "A bill to secure the effective conservation and further development of the sea-coast of the commonwealth through comprehensive planning." It was thoroughly reviewed and forwarded to the Commission on Marine Boundaries and Resources. Prompt enactment of a Massachusetts





coastal zone management bill will enable the Commonwealth to gear-up for any funding available to the state from the passage of the federal coastal zone bill.

- (6) Throughout the year MACOM has progressively shifted to a more active advisory role. It has commented on the planning of marine activities and recommended future policies via the existing state agencies and legislative committees.

#### RULES AND REGULATIONS

Rules and regulations were drafted and forwarded to the Commissioners of Natural Resources and Public Works. Based on their recommendations and consultants outside the state government, these are presently undergoing final draft and should be ready within the next two months. They have received an important part of the Division's time and will receive much more before being reviewed in public hearing.

#### THE COASTAL ZONE

The Division has expanded from the marine environment to the coastal zone for several reasons. They are:

- (1) The orderly extraction and transportation of mineral resources would necessarily affect the coastal zone;
- (2) In practical application, the coastal zone includes the Commonwealth's marine environment in addition to the land mass above the mean high water mark which supports activities having both a direct and indirect effect on the marine environment;
- (3) Planning the effective, multiple-use management of the marine environment will require more funding than the Commonwealth



could afford. Interest in the coastal zone was exhibited on a federal level by the introduction of numerous House and Senate bills each requesting a considerable amount of money be funded to the coastal states for the purposes of formulating and implementing a coastal zone plan. Projects planned to facilitate effective management of the marine environment could benefit directly from this funding.

Two major projects evolved from the Division's increasing interest in the coastal zone. The first was a coastal zone atlas being compiled by Joe Jackimovicz and originating from seven of the eight recommendations forwarded by the panel on Geological Industries during Governor Sargent's Conference on Massachusetts' Stake in the Ocean. These recommendations are:

- #1 A literature survey should be published with an annotated bibliography. All information concerning:
  - A. hydrography;
  - B. sediments in the immediate offshore areas;
  - C. information concerning geomorphology of the shoreline areas critical to industries;
  - D. recreation and shoreline development;
  - E. ecology of the shoreline should be amassed together; and,
  - F. previously accomplished engineering studies in addition to any geo-phusical data along the shorelines.
- #2 That detailed maps be displayed in an atlas and would include, but not be limited to, bedrock, geology, pleistocene geology, coastal vegetation, zones of erosion and areas of deposition.
- #3 Other areas might better be displayed by environmental distribution maps showing saltmarsh, coastal dunes and tidal flats.





- #4 The panel also recommends an annotated bibliography and an analysis of estuaries. Of particular interest would be hydrography, sediments, biology, the fish, shellfish and general exology. Pollution studies should be conducted and again, engineering studies and geophysical research conducted.
- #5 The Panel further recommends an ecological map. Atlas maps showing shoaling problems would be of serious concern and a summary of previous attempts to solve these problems would be important.
- #6 A hydrographic atlas.
- #7 In the offshore zone, the panel would be interested in topography and the mineral resources. Physical oceanography studies previously conducted should be reviewed to realize all known information on bathymetry, ocean currents and meteorological conditions.

Of the seven recommendations, numbers 1, 2, and 7 have been completed. In recommendation 3, all coastal wetlands and their legal status (ownership, status in regard to the Jones Acts and Coastal Wetland Protective Act) have been included in the atlas. Recommendation 5 has not been acted upon and recommendation 6 is in the process of being completed. Recommendations 2 and 3 have been presented in the form of an atlas with population statistics included.

The second major project was the drafting of environmental matrices. These are discussed in the next section.

#### ENVIRONMENTAL IMPACT MATRICES FOR THE COASTAL ZONE

Four environmental impacts matrices were drafted for the coastal zone of the Commonwealth. They concern the following activities:



- (1) Development and defense;
- (2) Recreation;
- (3) Transportation and communications;
- (4) Extraction.

The matrices show the specific possible adverse impacts of man's actions on the environment. It is a visual display of the conflictive chain of consequences that result from various types of human uses and activities in the coastal zone. They enable recognition of the location and genesis of specific conflicts caused by the many demands for use of the State's coastal resources on that resource itself.

Each matrix is designed to be used as a framework for:

- (1) Initial review of a proposed use or activity at a particular place and time for its adverse impact on the coastal resource.
- (2) Identification and analysis of proposed actions to correct, minimize or control possible adverse impact resulting from specific uses.
- (3) A check-list for analyzing and maintaining environmental quality.
- (4) Systematically identifying information needed to deal with environmental impacts and organizing it for storage and use.
- (5) Revealing areas where further research and investigation are needed.

#### ECOLOGICAL IMPACT STUDY

It is anticipated that phase 1 of the 3-phase program will shortly commence to study the ecological impact of sand and gravel mining in the waters of the Commonwealth. Phase 1 will include: (1) site selection and familiarization; (2) preparation of a detailed program plan and schedule; (3) preliminary site visits; (4) initial data collection;





and (5) preliminary analysis of findings. The program is one element of a multi-disciplined, multi-organization study of sand and gravel extraction and mapping technology. The program is supported by the federal government, the Commonwealth, the University of New Hampshire, and Raytheon Company. Inclusion of the Commonwealth's support during 1971 is specifically for the initiation of an ecological program. The total project includes (1) a pre-mining survey and inventory to classify the areas and gather baseline data; (2) field data collection during mining operations to determine immediate impact; (3) post-mining survey and inventory to determine longer term effects, recovery rates and integrated environmental impact.

#### DEPARTMENT LEGISLATION

Throughout the past fiscal year Robert Blumberg has been devoting a considerable amount of his time in keeping track of all proposed legislation concerning the Department of Natural Resources. His duties included testifying before House and Senate sub-committees, drafting new legislation, revising previously introduced legislation and urging the passage of all bills that benefit the natural resources of the Commonwealth.

#### SENE STUDY/AESOP

In conjunction with the Division of Water Resources, Richard Wilkins has been assisting in the formulation of a study plan outline for the mineral resources within Southeast New England. He has met several times with representatives from the Bureau of Mines and has recommended areas of study responsive to the needs of the State.

He has also contributed time to the Arts Environmental Semester outline Program under the guidance of the New England Aquarium research department. The program is a radical departure from previous education





programs in that it is a one-semester, unstructured course in urban planning that exempts a student from normal classroom and course requirements. The student will be exposed to the pressing environmental problems, methods utilized in rectifying these problems and face-to-face confrontation with environmental managers and alleged abusers. The major requirement for each student will be to interpret what he measures and discovers in terms of his own values and priorities. All students will be working with sponsors representing a variety of professions. Richard Wilkins has offered his services as a link to the many professionals in state resources management.



ANNUAL REPORT  
OF THE DIVISION OF WATER POLLUTION CONTROL  
FOR THE  
FISCAL YEAR ENDING JUNE 30, 1971

Publication No.  
Approved by Alfred C. Holland  
State Purchasing Agent





## DIVISION OF WATER POLLUTION CONTROL

### PROGRAM SUMMARY

This report summarizes the primary features of the Massachusetts Water Pollution Control program for the year ending June 30, 1971. The report reflects the activities of each section in the Division to upgrade and provide greater protection to end enhancement of the quality of Massachusetts waters.

New legislation and additional Federal regulations have necessitated a broadening of the Division's scope of activities. An increase in the number of treatment plants under construction, the addition of more companies and municipalities to the implementation schedule, and increased public reporting of pollution complaints have intensified the workload in most activities. Despite the greater demands upon the staff, the Division has experienced critical limitations on personnel, equipment and funds. This has restricted, and will continue to restrict in Fiscal Year 1972, any major change or expansion in pollution abatement programs. However, the Division will continue to work to obtain the most efficient utilization of existing personnel and equipment.



STAFF

The following table reflects the status of the Administrative and Technical staff of this Division.

<u>ADMINISTRATIVE</u>	<u>GROUP</u>	<u>FY 1969/70/71</u>	<u>FY 1972</u>	<u>FILLED 6/30/71</u>
Director	30	1	1	1
General Counsel	22	1	1	1
Assistant to the Director	20	1	1	1
Senior Accountant	16	1	1	1
Head Clerk	11	0	1	1
Principal Clerk	09	1	1	0
Senior Clerk & Stenographer	07	13	13	12
Senior Clerk	06	1	1	1
Senior Clerk Typist	06	<u>1</u>	<u>1</u>	<u>1</u>
		20	21	19
 <u>TECHNICAL</u>				
Supervising Sanitary Eng.	24	6	6	6
Environmental Bio-Eng.	23	1	1	1
Associate Civil Eng.	22	1	1	1
Associate Sanitary Eng.	22	9	9	7
Senior Sanitary Engineer	18	6	6	7
Assistant Sanitary Eng.	16	6	6	6
Junior Sanitary Eng.	14	8	6	6
Junior Civil Eng. Draftsman	14	0	1	1
Senior Sanitary Eng. Aid	11	<u>1</u>	<u>1</u>	<u>1</u>
		38	37	36



Administrative Budget

Budgetary appropriations and expenditures for the Division of Water Pollution Control are shown in the following table.

<u>Account</u>	<u>Title</u>	<u>Appropriations</u>		<u>FY 1971 Expend. (Payments &amp; Accts. Payable as of 6/30/71)</u>
		<u>FY 1970</u>	<u>FY 1971</u>	
01	Salaries, Perm. Pos.	382,000	445,873	426,681
02	Salaries, Other	162,620	199,650	197,134
03	Services, Non-Employees	25,000	43,200	42,437
05	Clothing	300	250	225
07	Lab Supplies & Exp.	1,500	2,500	2,374
08	Heat & Other Plant Oper.	1,300	1,300	400
10	Travel & Auto Expense	15,600	14,825	14,538
11	Advertising & Printing	7,350	6,800	5,953
12	Maintenance	3,900	5,300	5,278
13	Special Supplies & Exp.	22,500	23,050	22,855
14	Office & Admin. Expenses	11,938	14,786	14,781
15	Equipment	4,500	3,325	3,321
16	Rentals	7,990	7,462	7,458
		<u>\$646,498</u>	<u>\$768,341</u>	<u>\$743,435</u>





## Legislation

The following legislation was passed and signed into law since the last annual report.

### Acts of 1970

Chapter 692 - Establishes controls over off-shore disposal of chemicals and hazardous wastes.

Chapter 693 - Establishes rules and regulations to control boat pollution and marina operations.

Chapter 704 - Strengthens enforcement provisions of the Massachusetts Cleans Waters Act.

Chapter 746 - Provides for a \$25 million Bond Issue to assist marginal industries in the construction of pollution control facilities. (Subsequently declared unconstitutional by the Massachusetts Supreme Court)

Chapter 747 - This act provides for an additional \$250 million Bond Issue for the Construction Grant program, permitting the start of all new projects even if Federal Funds are not appropriated.

Chapter 781 - Establishes a mandatory Certification Board for wastewater treatment plant operators.

Chapter 827 - Strengthens oil pollution abatement provisions of the Massachusetts Clean Waters Act.



## CONSTRUCTION GRANT PROGRAM

Under the Massachusetts Clean Waters Act, the State Legislature established a State Program, in 1968, to assist communities in the construction of wastewater treatment facilities. Chapter 687 of the Acts of 1966 as amended by Chapter 873 of the Acts of 1967 provided a \$150 million bond issue over a 10 year period with a \$15 million limit in any fiscal year to be used for grants and other purposes. Chapter 747 of the Acts of 1970 provided an additional \$250 million bond issue to carry out the provisions of the Clean Waters Act. The program provides grants for the following purposes:

- 1) Comprehensive Planning of Wastewater Treatment Facilities.
- 2) Preparation of Final Plans and Specifications for Wastewater Treatment Facilities.
- 3) Construction Grants for Wastewater Treatment Facilities.
- 4) Prefinancing of Federal Grants.

### 1. Comprehensive Planning of Wastewater Treatment Facilities

Under Section 31 of Chapter 21 of the General Laws, the Division of Water Pollution Control provided grants of \$18,300 to Pittsfield and Palmer for developing comprehensive water pollution abatement plans during this Fiscal Year.

### 2. Grants for the Preparation of Final Plans and Specifications for Wastewater Treatment Facilities

Under Section 33 of Chapter 21 of the General Laws, the Division may advance to a community, a sum, up to seven percent of the estimated construction cost for contract plans and specifications.

During the fiscal year, planning grants for preparation of final plans were made to six Massachusetts communities and two sewer districts. These planning grants totaled \$3,670,685.





### 3. Construction Grants

Under Section 33 of Chapter 21 of the General Laws, the Division is authorized to make grants to communities of whatever percent is required to satisfy the condition that the federal grant be matched. Under the Federal Clean Water Restoration Act of 1966, the Federal Water Quality Administration provides grants of 50 to 55 percent of the construction cost if the State provides a 25 percent grant. During the Fiscal Year 1970, \$17,984,957 in State grants were made to 16 communities and three districts.

### 4. Prefinancing of Federal Grants

Under Section 33 of Chapter 21 of the General Laws, the Division may advance to a community a sum of money not to exceed the amount of the anticipated Federal Grant, if sufficient Federal Funds are not available. Up until February 1970, Federal funds were not sufficient to provide maximum Federal Grants for all applications. As of June 30, 1971, State Advances of \$4,801,580 were still outstanding on three projects.

### Federal Water Pollution Control Grant Program

Under this program, the Environmental Protection Agency (formerly the Federal Water Quality Administration) makes available to municipalities and political sub-divisions, grants for the construction of the wastewater treatment facilities. Funds allocated to Massachusetts for the fiscal year were \$21,980,200.

### Reimbursement Program

Section 37 of Chapter 21 of the General Laws provides for reimbursement to Cities, Towns, and the Metropolitan District Commission for a portion of the construction cost of pollution abatement facilities which were constructed prior to September 6, 1966. The program applies only to approved projects which were financed by serial bonds or notes issued after December 31, 1967. Payments are made in the amount of 30 percent of the annual principal payment maturing each year except where Federal Grants have exceeded 30 percent in which case the amount of reimbursement is reduced accordingly. Payments under this reimbursement program totaled \$1,223,042 in Fiscal 1971.

### Municipal Wastewater Treatment

During the fiscal year, continued progress was made in planning, development and construction of Municipal wastewater treatment facilities. The main activities of the section in this field consist of the following:



SUMMARY OF WASTEWATER TREATMENT PLANTS

JULY, 1970

CATEGORY	PRIMARY EXIST	PRIMARY U.C.*7/71	PRIMARY PLUS SAND FILTRATION EXIST	PRIMARY PLUS U.C.*7/71	ACTIVATED SLUDGE EXIST	ACTIVATED U.C.*7/71	EXTENDED AERATION EXIST	EXTENDED U.C.*7/71	TRICKLING FILTER EXIST	TRICKLING U.C.*7/71	TOTAL EXIST	TOTAL U.C.*7/71
MUNICIPAL	23	1	12	---	8	5	19	6	22	1	84	11
M.D.C.	2	---	---	---	---	---	---	---	---	---	2	---
STATE	2	---	14	---	---	---	2	---	4	---	22	---
PRIVATE	2	---	4	---	1	---	8	---	2	---	17	---
COUNTY	---	---	4	---	1	---	---	---	---	---	5	---
FEDERAL	4	---	3	---	1	---	2	---	4	---	14	---
INSTITUTION	1	---	8	---	1	---	11	---	---	---	21	---
MASS. TURNPIKE	---	---	---	---	---	---	2	---	---	---	2	---
TOTALS	34	1	45	---	12	5	44	6	32	1	167	11

\* U.C. = under construction



- 1) Review and approval of Engineering Reports of Wastewater Collection and Treatment.

Thirty-four reports received approval this year.

- 2) Review and approval of final contract plans and specifications.

Plans and specifications for fifty projects received approval in fiscal year 1971.

- 3) Review and approval of bidding and contract awards.

Thirty-three of these contracts were awarded during the year with a total contract cost of \$27,104,998.

- 4) Review and approval of Urban Renewal Projects.

Plans and specifications on seven HUD renewal projects were approved.





## INDUSTRIAL WASTE PROGRAM

During FY 1971 an additional 62 sources of industrial wastewater pollution were abated, bringing the total since the beginning of the program to 185. The industrial waste section approved 66 engineering reports and the final plans of 57 industries during the year. At the end of the fiscal year 44 companies had treatment or pretreatment facilities under construction. Industrial waste surveys performed by the Regional Offices located 65 new sources of industrial pollution, for which the Division established implementation schedules during the past year.

While review of reports and plans is the primary function of the Industrial Waste Section, the following additional activities were also undertaken: inspection of newly-operating industrial treatment plants in conjunction with Regional Offices; processing of applications for certification of treatment facilities as eligible for the tax benefits provided under Chapter 63, Section 38D and Chapter 59, Section 5, Clause 44, of the General Laws; assisting the Regional Offices in locating new sources of pollution and establishing implementation schedules; and assisting the Construction Grants Section in reviewing municipal reports where industrial wastes are a significant part of the total flow.

In the past year 180 units were made to industries located in the Northeast, Southeast, and Metropolitan Regions. The purpose of the visits was to inspect existing, partially constructed, or newly completed treatment facilities and to assist Regional Office personnel in settling up procedures for overseeing operation and maintenance of these facilities. Industries having their own treatment facilities that discharge into the waters of the Commonwealth are required to submit waste treatment operating records on a monthly basis. Twelve companies were certified as eligible for the tax reliefs provided by existing State laws.

The status of the Industrial Waste Program as of June 30, 1971, is summarized in the following tables. The columns for "under construction" and "construction completed" refer to treatment or pretreatment facilities. Some industries with very minor problems have connected directly to municipal sewerage systems, and these are tabulated separately and not included in the column for "construction completed".



## INDUSTRIAL WASTE PROGRAM

AS OF JUNE 30, 1971

### I. SUMMARY

Number of Industries	440
Engineering Reports Received	256
Engineering Reports Approved	230
Final Plans Received	181
Final Plans Approved	170
Under Construction	44
Completed Construction	105
Connected Directly to Municipal System	33
Changes Process	15
Out of Business or Moved	32
Total No Longer Polluting	185



INDUSTRIAL WASTES PROGRAM

II. BREAKDOWN OF TYPE OF INDUSTRY

STATUS

JUNE 30, 1971

TYPE	No.	E. R. Rec'd	E. R. Appr'd	F. P. Rec'd	F. P. Appr'd	Under Constr.	Compl. Constr.	Direct to Munic.	Ch. Proc.	O. B. or M.	Total N.L.P.
Paper & Allied Products	61	41	39	27	23	8	9	3	1	5	18
Textile	74	39	30	14	13	7	4	2	5	7	18
Chemical	28	22	22	18	15	5	9	2	1	0	12
Food & Allied Products	41	25	20	16	16	4	10	3	0	6	19
Leather Tanning	8	6	6	3	3	0	2	1	0	0	3
Metal Finishing	91	71	67	61	60	10	47	1	3	6	57
Primary & Fabricated Metal Products	41	23	21	18	18	6	11	4	2	2	19
Rubber & Plastic Products	10	4	4	2	2	1	0	1	0	1	2
Commercial	27	8	5	6	6	1	2	9	0	2	13
Petroleum Products Distribution	17*	5	4	7	5	0	4	0	0	1	5
Miscellaneous	42	12	12	9	9	2	7	7	3	2	19
TOTAL	440	256	230	181	170	44	105	33	15	32	185

ABBREVIATIONS

E. R. - Engineering Report  
F. P. - Final Plans  
Munic. - Municipal Sewerage System

Ch. Proc. - Changes Process  
O. B. or M. - Out of Business or Moved  
N. L. P. - No longer Polluting

\* Does not include  
companies handled  
separately under the





## OIL POLLUTION CONTROL

Chapter 648 of the Acts of 1968 directed the Division of Water Pollution Control to "undertake immediately, whenever there is spillage, seepage or filtration of oil into any of the waters of the Commonwealth or into any off-shore waters which may result in damage to the beaches or coastal areas, to cause said spillage, seepage or filtration to be contained and removed by whatever method it considers best and most expedient under the circumstances to safeguard the quality of the water". The Director of the Division was authorized to expend up to \$100,000 per fiscal year to carry out the provisions of the Act.

Chapter 827 of the Acts of 1970 strengthened the law by the increasing the amount which may be expended (subject to further appropriation) and by providing absolute liability for clean-up costs by the person responsible for an oil spill.

The great majority of oil spills are cleaned up by the person responsible for the spillage. Costs for these clean-ups are averaging \$1-2 million annually. Only in cases where the origin is unknown or the person responsible fails to act does the Division initiate clean-up. Clean-up services are provided by a contractor performing under established unit rates.

The following table summarizes spills which the Division initiated clean-up on, but where the person responsible for the spill assumed financial responsibility from the Division. No expenditures were therefore made by the Division on these spills:

<u>DATE</u>	<u>LOCATION</u>	<u>APPROX. COST</u>
6/69	Boston (Fort Point Channel)	\$ 50,000
9/69	W. Falmouth (Buzzards Bay)	50,000
2/70	Revere (Sales Creek)	12,000
10/70	Everett (Mystic River)	10,000
6/71	Everett (Mystic River)	10,000

The cost of oil spills cleaned up by the Division is Fiscal 1971 under the measures of the Oil Pollution Control Law is \$85,000. The cost incurred in Fiscal Years 1967-1970 (since passage of the law) was \$127,000. A total of \$20,000 has been recovered to date from persons responsible for some of these spills; claims for \$75,000 are still outstanding.



In accordance with the rules and regulations for oil pollution control filed under Chapter 648, the license applications for 47 marine oil terminals were renewed. Inspections of these facilities are conducted yearly.

Under a Research and Demonstration program directed toward oil pollution abatement the following projects were completed:

- a) Bioassays of Oil Spill Clean-up Chemicals  
(Marine Species) Battell Memorial Institute,  
Clapp Laboratories.
- b) Oil Pollution Control in Town - Fore River  
Area - Arthur D. Little.

Other projects continuing or initiated in Fiscal 1971 are:

- a) Oil Control Barrier, Chelsea Creek - Quincy  
Adams Marine Basin, Inc.
- b) Biological Recovery of Falmouth Coastal Area  
Following an Oil Spill - Woods Hole Oceanographic  
Institute.
- c) Oil - Boom Harvester System - JBF Scientific  
Corporation.



## IMPLEMENTATION AND ENFORCEMENT

Chapter 704 of the Acts of 1970 amended Chapter 21 of the General Laws by giving authority to the Director of the Division to notify and directly order polluters to provide adequate treatment for their wastes in accordance with the implementation schedule included in the Order. Under the previous legislation, the Division was required to hold a public hearing prior to the issuance of any order. The 1970 legislation protects the rights of the alleged violator by allowing him to request an administrative hearing within thirty days following the issuance of the Order. Since the effective date of this legislation, the Division has issued a total of 132 Orders. Out of this total number, 20 hearings have been requested and held. Of the 132 Orders issued, 55 represented new sources of pollution uncovered during the year. The overall status of the implementation program is summarized in the accompanying table.

Legal enforcement proceedings were undertaken in three different areas by the Division. During fiscal 1971, a total of 9 criminal complaints for discharges of oil into the waters of the Commonwealth were brought by the Criminal Division of the Attorney General's Office in district court at the request of the Director. The defendants were found guilty on all 9 counts and received fines of \$1900 out of a possible total of \$4300. An additional 24 complaints for discharges of oil have been filed by the Division and are still pending in the district court. The total fines which could be imposed on these complaints amounts to \$128,000.

The second area of legal enforcement action involves criminal complaints filed under Section 42 of Chapter 21 for the discharge of wastes into the waters of the Commonwealth in contravention of the Water Quality Standards. A total of eleven complaints were filed in district court during fiscal 1970. The defendants were found guilty of 10 counts and fined \$250 out of a possible total of \$10,000. One of these cases is still pending in district court.

Enforcement of the Division's orders under Section 46 of Chapter 21 is the third type of legal action undertaken by the Division. During fiscal 1970, the newly formed Division of Environmental Protection in the Attorney General's Office was requested by the Division to initiate civil enforcement proceedings in the Superior Court against 25 polluters for violation of Division Orders. Of these cases, 17 have been settled, most through the issuance of a Final Decree by the Superior Court, with 8 cases still pending.

The Town of Uxbridge is appealing the findings in the Final Decree issued in its case to the Massachusetts Supreme Court, and constitutes the







first appeal of this type since the Division's formation. It is hoped that the decision reached in this case will provide a useful legal precedent for the Division's enforcement program.

Contempt proceedings were initiated against 4 municipalities and 1 industry for violation of the dates in Superior Court Orders. The industry was found in contempt with the findings to be purged if the treatment facility is completed by November 1971. Three of the municipalities were found in contempt and fined \$2000 each. The Superior Court found that the fourth municipality was not in contempt, and extended the dates for completing the treatment facilities by 6 months.

The three municipalities found in contempt were ordered at the same time to return to their Town Meetings and appropriate funds for construction of pollution abatement facilities. The Town of Douglas complied with the contempt decree, voted the necessary funds and is proceeding with design and construction of its pollution abatement facilities.

The Town Meeting in Blackstone refused to appropriate funds, and the Division requested that contempt proceedings be initiated for violation of the Court's contempt decree. Because the fine of \$2000 had been suspended pending the outcome of the Town Meeting vote, the Court decided to make the most limited finding possible and merely imposed the \$2000 fine already indicated in the original contempt decree.

The Town of Grafton similarly refused to appropriate funds and similar proceedings were initiated in the Superior Court. Again the Court indicated its reluctance to force the Town Meeting to vote the necessary funds based on the Judge's consideration that he would be "punishing" the whole Town for the actions of only a minority of the Town voters. The Judge postponed disposition of the case until the Fall of 1971, and suggested that the Attorney General's Office and the Division look into other means of enforcing the Court ordered dates. Section 46 states in part that "the Superior Court shall have jurisdiction in equity to enforce any such order." Due to the reluctance on the part of the justices of the Superior Court to fully exercise their enforcement authority, the Division is currently drafting and researching new legislation to provide the necessary means for implementing the pollution abatement program of municipalities that have repeatedly refused to proceed voluntarily. Until such time as the Courts decide to act, or new legislation is passed, the ability of the Division to implement its municipal pollution abatement program is hampered.

In addition to the implementation and enforcement of the Commonwealth's pollution abatement program as described above, the Division is engaged in an extensive program involving the issuance of various permits and certifications required under State and Federal laws.

Under the authority of Section 43 of Chapter 21 of the General Laws, a municipality is required to obtain a permit from the Division for the construction of sewers, including construction of sewer improvements, extensions and connections. To date the Division has issued 316 permits, an average of 80 permits per year.



Prior to the issuance of any Federal permits under Sections 10 (construction in navigable waters) and 13 (discharges into navigable waters) of the River and Harbor Act of 1899 (also known as the Refuse Act), this Division, in accordance with the provisions of Section 21 (b)(1) of the Federal Water Quality Improvement Act of 1970 (Public Law 91-224), is required to certify that the proposed activity will not violate applicable water quality standards adopted by this Division under authority of Section 27(4) of Chapter 21 of the General Laws. The Division issues approximately 125 certifications for proposed construction in navigable waters during each fiscal year, and received approximately 200 applications for discharge permits for review and certification as of June 30, 1971. Approximately one half of these applications were from industries already on implementation schedules from this Division. Should this trend continue, it is estimated that approximately 900 applications for discharge permits will be received by the Division, all of which must be reviewed and recommendations made thereon, prior to the issuance of certification.

Section 27 of Chapter 21 was amended by Chapter 693 of the Acts of 1970 to provide that the Division adopt "regulations to control or prevent the discharge of sewage, garbage or other waste material from watercraft of any type". The Division has drafted regulations for controlling such discharges and has conducted public hearings in several areas of the Commonwealth on the proposed regulations.

Chapter 693 also added Section 59B to Chapter 91 of the General Laws which provides that, effective May 15, 1972, "no marina shall be operated without a license issued by the Division". Such licenses will be issued only to marinas providing adequate facilities for the collection, treatment and disposal of sewage or other sanitary waste; conveniently located dock-side toilet facilities; and conveniently located trash receptacles for the disposal of litter and refuse. Over the coming year the Division will be proposing rules and regulations for the licensing of marinas, and holding public hearings on the proposed regulations. The regulations will include procedures for applying for a license, for the review of all applications and engineering plans for marina installations, and for the issuance of marina licenses.

During fiscal 1970 the Division developed a computer program to keep up-to-date records of implementation schedules and enforcement actions. However, at the present time the Division lacks any computer for using this program and has had to resort to manual retrieval of records. Due to the scope of the Division's program as outlined above, this manual retrieval system is extremely inefficient. The Division intends to further investigate the use of a computer in order to make more efficient use of enforcement personnel and to provide immediate information retrieval.





# STATUS OF IMPLEMENTATION SCHEDULE - JUNE 30, 1971

## MUNICIPAL IMPLEMENTATION PROGRAM

	<u>NO.</u>	<u>%</u>
A. Municipalities on Implementation Schedule	132	
B. Municipal Projects on Implementation Schedule	166	100
C. Preliminary Reports approved	123	74.1
D. Final Plans approved	52	31.3
E. Municipal Projects under Construction	30	18.1
F. Municipal Projects Completed	11	6.6
G. Division Orders issued	74	44.6
H. Municipalities referred to Attorney General (Civil)	19	11.4
I. Court Orders Issued	9	5.4
J. Cases dismissed (satisfied Division's complaint)	2	1.2
K. Cases Pending	8	4.8

## INDUSTRIAL IMPLEMENTATION PROGRAM

	<u>NO.</u>	<u>%</u>
A. Industries on Implementation Schedule	429	100
B. Industries no longer polluting (change processes or out of business)	38	8.9
C. Preliminary Reports approved	223	52.0
D. Preliminary Reports not required*	65	15.2
E. Final Plans Approved	157	36.6
F. Final Plans not required*	42	19.8
G. Industrial Projects under Construction	44	10.3
H. Industrial Projects Completed	114	26.6
I. Industries awaiting municipal sewer	58	13.5
J. Division Orders Issued	234	54.5
K. Industries referred to Attorney General (Civil)	25	5.8
L. Court Orders issued	4	1.0
M. Cases Dismissed (satisfied Division's complaint)	8	1.9
N. Cases Pending	13	3.0

\* Industries which will connect to municipal system, when available, without pre-treatment, and from whom reports and/or final plans are not required.





## Water Quality Management Section

### Part B -- List of Wastewater Discharges

Deerfield	Rumford
Hoosic	Upper Taunton
Ipswich	Lower Taunton
Mt. Hope Bay	

### Part C -- Summary Report on Rivers

Charles	Ipswich
Housatonic	Ten Mile
Otter	Quinebaug
Basin Plan	
Otter	Quinebaug

Computer simulations were completed for the Charles, Housatonic and Assabet Rivers, and assimilative capacities of the rivers were calculated for discharges to the Charles and Housatonic Rivers, with the aid of the computer models.



## Water Quality Management Section

The Water Quality Management Section surveys, analyses and reports on the condition of the natural waterbodies of the Commonwealth. In addition the section evaluates proposed treatment facilities for their adequacy in terms of water quality. In accord with new Federal regulation for construction grants, the section develops Basin Plans for river systems and determines whether construction grant requests conform to the Basin Plan, review and certification of Regional Plans is also the responsibility of this section.

Three major river surveys were conducted in the Blackstone, Taunton and Ten Mile river valleys. In addition the North River near Scituate was surveyed.

### Part A -- Data Record of River Survey

Thirty-four new reports were published on the following rivers, complementing the twelve (12) reports published the previous year.

### Part A -- Data Record of River Survey

Blackstone	Otter
Boston Harbor	Quinebaug
Chicopee	Rumford
Connecticut	Upper Taunton
Deerfield	Lower Taunton
Millers	Mt. Hope Bay

### Part B -- List of Wastewater Discharges

Assabet	Millers
Blackstone	Otter
Boston Harbor	Quinebaug



DIVISION OF WATER POLLUTION CONTROL  
STATUS OF MASSACHUSETTS RIVER REPORTS  
JULY 1971

River	Data Status	Part A River Survey	Part B Polluter Survey	Part C Graphical Summary	Basin Plan
Assabet	Published	X	X	July 71	July 71
Blackstone	Published	X	X	July 71	Aug. 71
Boston Harbor	Published	X	X		
Cape Cod	No Survey				
Charles	Published	X	X	X	Sept 71
Chicopee	Published	X	Jan 72	April 72	Aug. 72
Concord	On File				
Connecticut	Published	X	Jan 72	April 72	Aug. 72
Deerfield	Published	X	X	April 72	Aug. 72
French	On File				
Hoosic	Published	X	X		
Housatonic	Published	X	X	May 71	Oct. 71
Ipswich	Published	X	X	X	
Merrimack	On File				
Millers	Published	X	X	April 72	Aug. 72
Mystic	Published	X			
Nashua	On File				
Neponset	On File				
North Coastal	On File				
North-Scituate	On File				
Otter	Published	X	X	X	X
Parker	Published	X			
Quinebaug	Published	X	X	X	X
Shawsheen	Published	X			
South Coastal	No Survey				
Sudbury	On File				
Taunton					
Rumford & Three Mile	Published	X	X	July 71	
Upper Taunton	Published	X	X		
Lower Taunton	Published	X	X		
Mt. Hope Bay	Published	X	X	July 71	
Ten Mile	Published	X	X	X	Aug. 71
Westfield	Published	X	Jan 72	April 72	Aug. 72





## OPERATION AND MAINTENANCE SECTION

Consistently good operation and maintenance at treatment facilities is necessary if an effective pollution abatement program is to be a reality. This will become more obvious as more new treatment plants are constructed. Present efforts to ensure good O & M include:

- 1) Plant Inspections  
Personnel limitations prevent monthly inspections in all regions but this is the goal.
- 2) Operator Training  
This program under the Research and Training Section has been very effective and is one of the best in New England.
- 3) Monthly Operating Records  
These reports do not provide complete details about how a plant is operating but they do provide important data and often serve to alert Regional Engineers about operating problems.
- 4) Direct Orders from this Division  
The Director may be compelled at times to pursue this as the best route in certain extreme cases.
- 5) Refusal to Approve Applications for Permits for New Outlets  
Sewer extensions are not permitted in municipalities whose treatment facilities are not functioning properly. This action serves to create incentives where none exist otherwise.

### Rules and Regulations for the Operation and Maintenance of Wastewater Treatment Facilities

Rules and regulations are authorized under the Massachusetts Clean Waters Act. A draft has been written and will be circulated within the Division before publication. Experience over the past few years in dealing with the many varieties of equipment breakdowns and operational deficiencies indicates that these can in many cases be avoided or at least minimized. It is felt that rules and regulations spelling out in some detail what is considered proper operation and maintenance are needed and will greatly simplify regulation of treatment facilities and potential sources of pollution along the sewerage system.



## Mandatory Certification of Treatment Plant Operators

Commencing July 1, 1971, all wastewater treatment plants in Massachusetts must have at least one certified operator. This requirement became law in 1970 and is expected to upgrade the quality of plant operators in the next few years.

The goal of this Section is to work towards developing an awareness on the part of those in charge of treatment facilities of the importance of continuing good operation and maintenance in order to achieve satisfactory treatment and ultimately enhance water quality.



## RESEARCH AND TRAINING

### Training

#### Operator Training

Merrimack College, North Andover, Massachusetts - Forty Operators completed 12-week (36 hours) evening laboratory-oriented training programs held in the Sanitary Engineering Laboratory at Merrimack College. Sixty operators attended three-day laboratory sessions during the summer months.

Wentworth Institute, Boston, Massachusetts - Sixteen operators from the MDC Deer Island and Nut Island Sewage Treatment Plants attended a twenty-four week (72 hours) evening operator training program at Wentworth Institute.

Bridgewater State College, Bridgewater, Massachusetts - Thirty-eight operators attended 15 week (45 hours) evening laboratory-oriented operator training programs held in the Chemistry Department of Bridgewater State College.

Berkshire Community College, Pittsfield, Massachusetts - Thirty-six operators attended 12-week (36 hours) evening laboratory-oriented operator training programs held at Berkshire Community College.

Springfield Technical Community College, Springfield - Twenty operators attended the Springfield Technical Community College program in Wastewater Treatment Plant Technology.

Fitchburg Field Training Center, Fitchburg - Thirty operators completed two week field training programs on activated sludge plant operation and laboratory control held at the Fitchburg sewage treatment plant.

#### In-Service Training

Northeastern University - Six Division personnel attended evening engineering courses at Northeastern University with tuition paid by the Division.

University of Massachusetts - Two Division engineers attended a three-day course on water quality at the University of Massachusetts.

Manhattan College - One engineer attended a one-week course in water quality mathematical modeling at Manhattan College.

IBM Computer School - One engineer attended a one-week course in Fortran Job-control-language.







Division Seminars - The following seminars were presented during the past year:

Intra-Red Imagery and Heated Water Discharges in Massachusetts  
Tim Flynn, Raytheon Company

Biology and Water Pollution

Arthur W. Johnson, EPA, Water Quality Office

River Basin Planning: A Case History

David Horsefield, Camp, Dresser & McKee

Zimpro Process for Sludge Treatment

Frank Groman, Zimpro

The Metropolitan Area Planning Commission

David Gardner, MAPC

Scholarship - Intern Program

Scholarships were continued for two engineering students during the past year. One recipient is attending Tufts University and the other student is attending Merrimack College. The scholarships include tuition, room and board and fees.

Research Program

The total value of Research and Demonstration contracts awarded during Fiscal Year 1971 amounted to \$626,654. Since the first contract was signed on June 27, 1968, a total of \$1,865,960 has been committed for the bond fund for Research and Demonstration projects.

Operator training has involved eight separate programs, including two for on-the-job training of graduates from environmental technician courses, with a total value of \$108,440. During FY 1971, \$49,500 was committed to such programs.

The following research and demonstration projects were completed during this year:

Systems Applications for Water Pollution Control - Quirk, Lawler, & Matusky, Engineers

This project involved the development of a one dimensional mathematical simulation model of water quality in a river. The Housatonic River was used in this simulation and the project cost was \$67,500.

Mathematical Model for Boston Harbor - Hydroscience, Inc.

The \$60,000 project to develop a two dimensional steady state water quality model of Boston Harbor was completed. The model can be used to evaluate certain water quality parameters in any estuary provided the necessary field data are available.



The following research and demonstration projects were developed during the year:

Monitoring Thermal Discharges by Infra-red Imagery - Raytheon Marine Research Laboratory

This \$25,000 project was to demonstrate the use of infra-red radiometry and imagery for remote sensing of thermal effluents from airplanes. The major water courses of the Commonwealth were overflowed at least once.

Water Quality Monitoring in Boston Harbor - New England Aquarium

The general objective of this \$38,400 project was to demonstrate an approach to water quality monitoring in an estuary-harbor environment and to include all physical, chemical and biological parameters which are meaningful in evaluating water quality.

The following research and demonstration projects were completed during this year:

Systems Applications for Water Pollution Control - Quirk, Lawler, & Matusky, Engineers

This project involved the development of a one dimensional mathematical simulation model of water quality in a river. The Housatonic River was used in this simulation and the project cost was \$67,500.

Mathematical Model for Boston Harbor - Hydroscience, Inc.

The \$60,000 project to develop a two dimensional steady state water quality model of Boston Harbor was completed. The model can be used to evaluate certain water quality parameters in any estuary provided the necessary field data are available.

Oil Pollution Control in the Town of Fore River Area - A. D. Little, Inc.

A \$59,400 grant was awarded to A. D. Little to develop oil pollution control procedures for a section of Boston Harbor. This project will involve a survey to determine actual and potential sources of oil pollution, plant surveys, past accident analysis, investigation of environmental factors effecting oil spills and clean-up, and will make recommendations for prevention and clean-up.

The following research and demonstration projects were continued from the previous year:

Nutrient Removal from Wastewaters by Primary

Treatment (University of Massachusetts)

A \$108,550 grant was awarded to the University of Massachusetts to study modifications (by addition of chemicals) to the primary wastewater treatment process that will result in (a) removal of algal nutrients (nitrogen and phosphorus) and (b) increased removal of biological oxygen demand. A 10,000 gallon per day plant will be constructed on the Town of Amherst sewage treatment plant site.





Pollution of Lakes by Watercraft Exhausts - (University of Massachusetts)

A \$59,900 grant has been awarded to the University to study the effects of watercraft exhausts on the water quality of recreational lakes. Specifically, it will determine the type and quantity of pollutants such as lead, oxides of nitrogen, and hydrocarbons which enter the water by engine exhausts.

Suppression of Bottom Deposit - Water Recycling of Nutrients in Lakes (University of Massachusetts)

A \$129,850 grant was awarded to the University to study the effects of mixing on nutrient recycling in lakes, determine the extent and depth from which bottom deposit release their nutrients, and determine the feasibility of suppressing nutrient recycling.

Pesticide Monitoring Program (Division of Fisheries and Game)

A \$130,000 grant was awarded to the Division of Fisheries and Game to investigate pesticide monitoring techniques and demonstrate the use of specialized, analytical methods for determination of hydrocarbon concentration in the aquatic environment. This project will continue and on-going pesticide monitoring program for the major watersheds of the Commonwealth.

Biological Recovery of the Falmouth Coastal Area following an Oil Spill (Woods Hole Oceanographic Institution)

A \$15,000 grant was awarded to the Woods Hole Oceanographic Institution to study the effect on the environment of an oil spill in Falmouth, Massachusetts, to determine the biological impact and recovery rate and to form a basis for evaluating clean-up procedures and economic losses. This is a joint project with the Federal Water Quality Administration.

Chelsea Creek Oil Pollution Control Barrier - (Quincy Adams Marine Basin, Inc.)

A \$11,000 grant was awarded to Quincy Adams Marine Basin to determine the use of a permanent floating boom to control oil pollution at the mouth of one of the tributaries of Boston Harbor (Chelsea Creek). The boom is intended to retain oil and debris inside the mouth of Chelsea Creek where it can be removed at minimum cost.

Thermal Pollution Control

Investigations were made and/or Technical-Administrative Advisory meetings attended concerning the following projects:

Pilgrim Nuclear Station (Boston Edison), Plymouth

Several committee meetings were attended during the year concerning the ecological and radiological studies being conducted by the Boston Edison Company pertaining to the environmental effects of the operation of this station.

Brayton Point Generating Plant Expansion (N. E. Electric) Somerset

Several Federal-State Advisory Committee Meetings were attended concerning a proposed expansion of the Brayton Point Plant.

Potter Station (Municipal), Braintree

A preliminary report was reviewed concerning a major expansion the Potter Station.





The following projects were developed during FY 1971:

Algae Control by Artificial Mixing in Lake Cochituate - Jason M. Cortell and Associates

This \$13,500 project is aimed at (1) developing a method to evaluate the causes and inputs to a lake which effect eutrophication and (2) to demonstrate the effects of lake destratification by artificial mixing.

Control of Contaminated Storm Water by Use of Sodium Hypochlorite - S.E.A. Consultants

This \$20,000 project involves the treatment of storm waters with sodium hypochlorite so that the bacterial quality of Wollaston Beach, Quincy would be acceptable at all times for bathing.

Use of Organic Polymers to Improve Primary Settling Efficiency - Calgon Corporation

The general aim of this \$18,000 project is to demonstrate improved solids removal during primary sedimentation through the use of polymer at the MDC's Nut Island Sewage Treatment Plant.

Methods of Measuring Fecal Coliform in Estuarine Water - Lawrence Experiment Station Department of Public Health

This \$30,104 project is aimed at developing a rapid and true direct count procedure for estimating the fecal coliform concentration in estuarine waters.

Quantitative Analysis of the Cape Cod Bay Ecosystem - Marine Biological Laboratory

This project is to complete an investigation of the kinds, abundance, diversity, distribution and groupings of benthic marine animals relative to environmental parameters in Cape Cod Bay. The \$61,928 project is funded 30% by the Division and 70% by EPA, Office of Water Quality.

Toxic Metals Survey - Lawrence Experiment Station, Massachusetts Department of Public Health

This \$67,500 project involves a general survey of toxic elements in selected lake, river, and sea water systems within the Commonwealth of Massachusetts.

Time Variable Mathematical Water Quality and Hydrodynamic Simulation Model for Boston Harbor - Hydrosience, Inc.

This time variable model is primarily concerned with assessing the effects of storm water and combined sewer overflows. The model will be used to evaluate proposed engineering solutions to water quality problems in the Harbor. The project cost is \$85,000.

Charles River Basin Study - Process Research

This \$62,000 project is intended to establish a methodology for monitoring storm flows and combined sewer overflows to the Charles River Basin and to give a general assessment of the effects of such overflows on the water quality between the Watertown and Science Museum dams.



Application of a Mathematical Water Quality Simulation Model to the Connecticut River Basin - Quirk, Lawler and Matusky, Engineers

This is the third phase of a project which developed a model for the Housatonic River. This phase involves overseeing the application of the model by Division personnel a more complex system, namely the Connecticut River and is scheduled for \$50,000.

Oil Boom - Harvester System - J.B.F. Scientific Corporation

This project entails the design, construction testing and demonstrating of an oil mobile oil collecting system and the total cost is not to exceed \$60,000.

Environmental Systems Study Program - Worcester Polytechnical Institute

This project, in cooperation with WPI and MDC is designed to (1) evaluate various methods of sludge disposal from the Deer and Nut Island Sewage Treatment Plants and (2) to provide the participating students with exposure to a real world engineering problem. The Division's financial contribution to this project is \$11,140.

Water Quality Monitoring in Boston Harbor - New England Aquarium

This is a continuation and expansion of the Boston Harbor monitoring project and will involve preliminary work on a biological model of the Harbor in addition to collecting and analyzing water quality data. The projects's cost is \$67,410.

Waste Load Survey of the Connecticut River Basin - Tighe & Bond, Inc.

This \$115,000 project is intended to survey the most significant waste load sources in the lower Connecticut River Basin of Massachusetts. Both industrial and municipal sources will be evaluated and the data will be used by the Division to define the degree of waste treatment necessary to meet the designated water quality classification in the affected areas.

Monitoring Thermal Discharges by Infra-red Techniques (Description under projects completed this year).

Thermal Pollution Control

The Division has reviewed applications for new discharge permits and for certification from several electric-power companies. Thus far this year, interim discharge permits, with certain requirements have been issued (noted I) to or have been requested (noted R) by:

<u>Company</u>	<u>Project</u>
New England Power (R)	Brayton Power Plant Expansion from 3 to 4 units Somerset, Massachusetts
Boston Edison (R)	An additional unit for the Mystic Power Station Everett, Massachusetts

In addition, certification as required by Section 21(b) of the Federal Water Quality Act of 1970 (Public Law 91-224) have been requested (noted R by or issued (noted I) to:





<u>Company</u>	<u>Project</u>
Boston Edison (I)	Pilgrim Nuclear Power Plant Plymouth, Massachusetts
New England Power (I)	Bear Swamp Pumped Storage Facility, Deerfield River Towns of Florida and Rowe, Massachusetts
New England Power (I)	Canal for Cooling Water Discharge for 3 existing units at the Brayton Point Power Plant, Somerset, Massachusetts

Preliminary plans were reviewed for a proposed second unit at the Canal Electric Company Canal Plant in Sandwich.

Special environmental studies have been conducted and will be continued on

Pilgrim Nuclear Power Plant  
Brayton Point Fossil Fuel Power Plant

A special study was also conducted in connection with the Mystic Power Station's proposed expansion.

It is the general policy of this Division to issue interim discharge permits, valid for three years from start up, for large thermal discharge from power plants if our review of the available data indicates that there is reasonable assurance that the applicable water quality standards will be maintained. Part of the requirements of such a permit is that before and after environmental study be conducted on each site. Generally, an intensive study of four years (two before and two after) is involved. After the studies are completed a discharge permit can be issued and any requirements needed to ensure the maintenance of the applicable water quality standards are incorporated therein.

If any pollution results from the discharges, abatement can be required by this Division regardless of the issuance of the permits.

RAI/lw





## METROPOLITAN REGIONAL OFFICE

The Metropolitan Regional Office is located in Boston and is staffed presently by two engineers. The office serves 21 municipalities bordering Boston Harbor, the lower Charles, Mystic, Neponset and Weymouth River Basins.

The office is responsible for investigations of complaints, waste surveys, supervision of waste treatment facilities and coordination with the Metropolitan District Commission and other local authorities regarding pollution abatement projects in the area. In addition, the majority of marine oil terminals in Massachusetts are concentrated within this area, necessitating surveillance and follow-up investigation in this activity.

During FY 1971, one hundred forty-five complaints were investigated by this office. Remedial action was taken where appropriate and referral to the proper agencies was made where necessary. Thirty-four water pollution projects were initiated, of which nineteen have been completed. Seven industries and municipalities were placed on pollution abatement schedules. Six oil terminals were ordered to install oil/water separators to prevent further discharge of oil. Twenty-four inplant industrial waste surveys were completed with the cooperation of the Industrial Waste Section of this Division. Twenty-six marine oil terminals were inspected and given renewal licenses by personnel from this office.

Metropolitan office personnel have assisted in water quality surveys of the Ten Mile, Taunton, North and Blackstone River Basins.

Engineers from this office have spoken at or participated in several pollution abatement programs conducted by colleges, high schools or serve organizations in the area.



## NORTHEAST REGIONAL OFFICE

The Northeast Regional Office has been located at Guild Hall Merrimack College, in North Andover for the past three years and is presently staffed by four engineers, one Natural Resource Officer, and a secretary. This office serves 106 communities which are located in the Blackstone, Merrimack, Upper Mystic, Nashua, Ipswich, Parker River Basins, and other North Coastal waters. During Fiscal Year 1970, 160 projects (complaints, investigations, sanitary surveys, industrial surveys, oil spills, etc.) were processed by this office. In addition, the following treatment facilities were sampled on a 24 hour basis to establish efficiencies and their effect on the receiving stream; and follow up action has been taken to assist those plants that had deficiencies:

Bedford V. A. Hospital	Grafton State Hospital
Clinton (MDC)	Dracut School Complex
Concord	Tewksbury State Hospital
Pentucket Regional School - West Newbury	
Western Electric Sanitary Facilities - North Andover	
Western Electric Industrial Facilities - North Andover	

The number of legal actions initiated by this office seems to increase each year with approximately 20 court appearances, taking action under Section 42 relative to municipal and industrial polluters. Two of the engineers consistently spend 50% of their time assisting plant operators who have major problems. An attempt is made to visit each plant on a monthly basis but since there are in excess of 60 treatment facilities in the region, with the number increasing each year. We have not been able to faithfully visit each plant this often. Marlboro (Westerly), Westboro, and Millbury placed new treatment facilities in operation during the past year; and several other plants are under construction.

Personnel from this office have assisted in the Lake Quinsigamond survey, and we conducted our own extensive survey on the Aberjona River.

The Training Program at Merrimack College has continued to progress in an orderly manner, and this Spring we conducted our fourth 15-week Evening Training Course. This rather comprehensive laboratory oriented program which covers all phases of treatment from preliminary through advanced wastewater treatment is much in demand. A total of 38 operators, supervisors, and engineers completed the program this past year and an additional 12 people audited the course for a second time. As a follow up to this Training Program, engineers from



this office throughout the course visit the students at their respective plants to insure that optimum use is made of the knowledge gained during the training here at Merrimack College. In addition to this Training Program, three of the engineers participated in the Manpower Training Program, presented at Essex Agricultural School located in Danvers. This program is designed to train unemployed people as potential operators and technicians in the Water Pollution Control field.

Engineers from this office and seven operators from throughout the region attended the two-week Activated Sludge Course that was presented in Fitchburg.







1971 ANNUAL REPORT

WATER RESOURCES COMMISSION

DIVISION OF WATER RESOURCES

CHARLES F. KENNEDY  
DIRECTOR



## INTRODUCTION

The passage of the Environmental Policy Act of 1969 had a noticeable impact on the Division of Water Resources during the 1971 Fiscal Year. Although the Division's own mandate includes broad environmental responsibilities, the requirement to fully account in writing for the potential impacts of Federally funded projects has given this agency new and important obligations. While the review of statements for 24 completed plans was itself a substantial task, the Division now has an opportunity to provide for and assign great weight to environmental values in the planning of State-Federal water and related land resources projects.

Several current planning projects are of great importance to the Northeast. The North Atlantic Regional Study is examining the broad spectrum of water resource needs from Maine to Virginia. The Southeast New England Study led by the New England River Basins Commission is an intensive water resource investigation of most of coastal Massachusetts and all of Rhode Island. The Northeast Water Supply Study is extremely important to water consumers in the Commonwealth. One element of this study deals directly with the future water supply of all of the Commonwealth east of Berkshire County with intensive studies relative to water supply diversions from the Connecticut and Merrimack Rivers.

In focusing on the Merrimack, a pioneering study to determine the maximum feasible pollution abatement program has been generated on that stream. In all the foregoing studies the Division of Water Resources is the participating state agency, and in all of them great attention is being devoted to ecological considerations as well as to our vital water supply needs.



## Flood Control

Four small watershed protection dams in three watersheds were completed in fiscal year 1971. The George H. Nichols Site in Westborough and the Delaney Complex in Bolton, Boxborough, Harvard and Stow, both in the SuAsCo Watershed, will provide for fish and wildlife development and flood control. The Division acquired the 1150 acres needed for these projects and administered the construction contracts. The Harland Street Site of the Pine Tree Brook Watershed in the Town of Milton will also provide for fish and wildlife development. The Division acted only as the contracting agency for the Town of Milton in this project. The other dam completed during the year was the multiple purpose structure at the North Silver Site in the Clam River Watershed in the Town of Sandisfield.

Only one dam was started in fiscal 1971, the Black Brook Site of the Bradley Brook Watershed in the Town of Blandford, a water supply and flood control structure. Preparations were made to acquire land and begin construction at the Lester G. Ross floodwater retarding dam in the Town of Berlin as another element of the SuAsCo Plan.

In addition, the Division of Water Resources processed requests for flood plain studies submitted by three municipalities.

## Reservoir Site Acquisition

In August 1970, the General Court of Massachusetts passed Chapter 767 which established a 5,000,000 dollar bond issue which is to be used for the acquisition of future reservoir sites. The administrative procedures and priority schedules are being established in order that the program may be most beneficial to the future water needs of the Commonwealth.







### Small Watershed Planning

Preliminary local meetings were held in four watersheds relative to the development of reconnaissance reports or work plans on four watersheds: The Upper Quaboag Supplement, The Weweantic River, The Mill River (Northampton) and The Green River (Williamstown). At this time the development of an operational work plan is authorized only for the Upper Quaboag. (see figure 1).

### Massachusetts Water Resources Study

The Commonwealth's 28 sub-basin are being studied under a cooperative agreement between the Water Resources Commission, the U.S. Soil Conservation Service, The Forest Service, and the Economic Research Service. The study will appraise potential reservoir sites, recreational and fish and wildlife development potentials, floodwater, sediment and erosion damage and wetland areas by soil types, etc. (Progress by basins is shown in figure 2).

### Cooperative Groundwater Studies

A program involving state and federal sharing of funding and supervision is preparing groundwater favorability studies for the Commonwealth. A completion schedule of the report produced by the U.S. Geological Survey and the Water Resources Commission is shown in figure 3.



## SPECIAL STUDIES

### Ipswich River District Water Supply Study

The Ipswich River is the principal source of water for a large number of communities both within and without the basin. Because the near future demand for water in these communities will surpass the quantity of water available from the existing storage and pumping facilities within the basin, a number of local and regional water-supply plans have been put forth by various planning or engineering agencies. The result is a profusion of apparently feasible alternatives that cannot be compared and contrasted because of differing assumptions and methodologies, and degrees of completeness. In order that these alternatives could be properly assessed, the firm of Hill and Lind was hired to assist the Division of Water Resources staff place the alternatives on a common basis of water quantity, quality, and cost, and to select the most flexible and least-cost solution. The results of this study allow the alternatives to be disaggregated into component parts. From this, a "new" alternative has been formulated that appears to offer the most flexible and least-cost solution to the water-supply problem of the Ipswich Basin communities.

### Neponset River Basin Flood Plain and Wetland Encroachment Study

With the enormously increased pressure to urbanize the extensive flood plains and wetlands of the Neponset Watershed, the Division recognized the immediate need for a technically sound, basin-wide policy of administering Chapter 131, Section 40 of the General Laws (The Hatch Act). In order to promote a policy of wise land use through knowledge of surface water flows in the Neponset Basin, the firm of Anderson and Nichols and Company was retained under the general direction of the Division of





Water Resources staff to conduct a hydrologic and hydraulic study. The study was undertaken principally to relate various degrees of urban encroachment of the natural flood plains and wetlands throughout the basin to the stages of floods of various magnitudes. The study indicates that flood stages are increased due to floodplain and wetland encroachment, and that existing urbanized areas not now inundated by a 100 year flood, would be inundated if as little as 10% basin-wide encroachment were allowed. The study also points out places where removal of certain channel constrictions would allow the basin to accommodate a greater percentage of encroachment than is now possible.

### Publications

The Division of Water Resources published the following reports or studies during the fiscal year:

1. Complication and Summarization of the Massachusetts General Laws, Special Laws, Pertinent Court Decisions, etc. Relating to Water and Water Rights, 1970, 269 pages.
2. A Summary of State Laws, Policies and Programs Pertaining to Water and Related Land Resources (2nd Edition) 1971, 132 pages.
3. Biennial Report Thames River Valley Flood Control Commission, 1969 and 1970, 19 pages.
4. Neponset River Basin Floodplain and Wetland Encroachment Study, 1971, 61 pages.





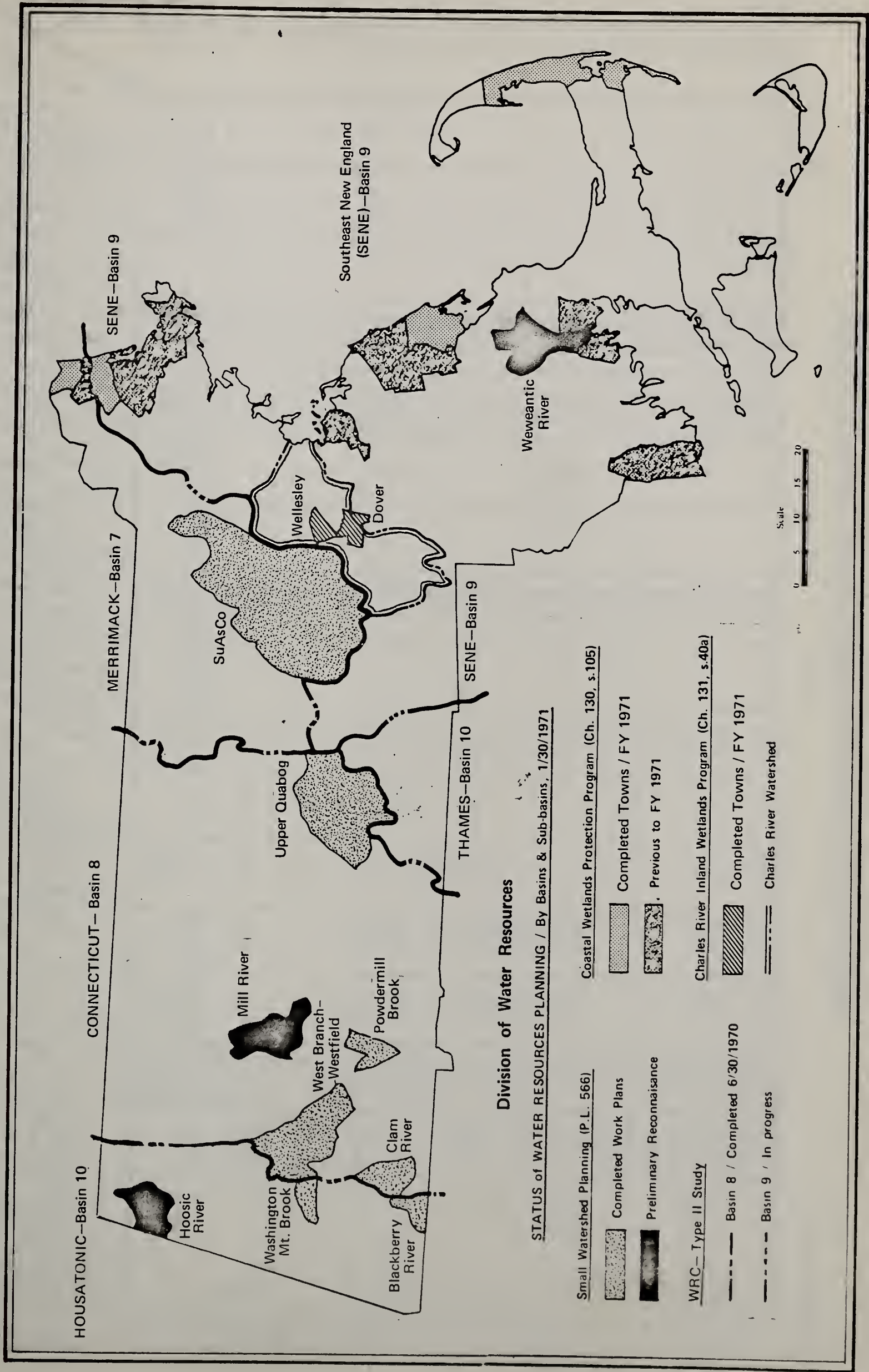


Figure 1





AGENCY RESPONSIBILITY		SCS	SCS	SCS	SCS	SCS	SCS	SCS	SCS	WPC	FS/SCS	USDA /F&G	USDA /F&P	ERS	USDA	ERS	ALL	ALL
AGENCY KEY																		
ERS - Economic Research Service																		
F&G - Fisheries & Game, Div. of																		
F&P - Forests & Parks, DNR																		
FS - Forest Service																		
SCS - Soil Conservation Service																		
USDA-US Dept of Agriculture																		
WPC - Water Pollution Control																		
WR - Water Resources																		
RIVER BASIN																		
OTHER STUDIES																		
SITE INVENTORY																		
FLOOD DAMAGE																		
EROSION & SEDIMENT DAMAGE																		
FLOOD PLAIN IDENTIFICATION (On Areas Proposed)																		
WETLANDS																		
IRRIGATION, DRAINAGE & WATER SUPPLY																		
WATER QUALITY & LOW FLOW																		
LAND TREATMENT & MANAGEMENT																		
FISH & WILDLIFE																		
RECREATION																		
ECONOMIC BASE																		
LAND USE & PROJECTIONS																		
ECONOMIC IMPACT																		
CONCLUSIONS & RECOMMENDATIONS																		
DRAFT REPORT																		
WR TOTAL STUDY																		
Hudson		50%	50%	10%	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	30%	
Housatonic		30%	-	20%	-	25%	-	25%	-	25%	-	70%	60%	-	-	10%	30%	
Charles	SENE			70%	60%											70%	90%	
Thames		-	-	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Neponset	SENE	20%	20%	10%	70%	20%	-	25%	-	25%	-	70%	60%	-	-	-	30%	
Blackstone	SENE	-	-	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Nashua	75%	-	-	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Parker	SENE	-	-	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Ipswich	SENE	70%	-	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
North Shore	SENE	40%	40%	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Deerfield	CRB	50%	50%	15%	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	30%	
Taunton	75%	10%	10%	-	-	10%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Merrimack		-	-	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Chicopee	CRB	50%	50%	25%	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	30%	
Sudbury	W/S	50%	50%	20%	20%	50%	-	25%	-	25%	-	70%	60%	-	-	-	30%	
Assabet	W/S	80%	80%	30%	-	80%	-	25%	-	25%	-	70%	60%	-	-	-	30%	
Concord	W/S	40%	40%	-	-	40%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Millers	CRB	50%	50%	-	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
North Conn. Valley	CRB	50%	50%	-	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
South Conn. Valley	CRB	50%	50%	-	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Narragansett	SENE	-	-	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
South Shore	SENE	-	-	-	5%	20%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Buzzards Bay	SENE	10%	10%	-	-	10%	-	25%	-	25%	-	70%	60%	-	-	-	10%	
Cape Cod	SENE	-	-	-	-	20%	-	25%	-	25%	-	70%	60%	-	-	-	10%	
Central Conn. Valley	CRB	50%	50%	-	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Farmington	CRB	50%	50%	25%	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Islands	SENE	-	-	-	-	-	-	25%	-	25%	-	70%	60%	-	-	-	20%	
Westfield	CRB	50%	50%	25%	-	50%	-	25%	-	25%	-	70%	60%	-	-	-	20%	

Division of Water Resources

Completed

Figure 2

MASSACHUSETTS WATER RESOURCES STUDY PROGRESS REPORT

Thru 6/30/1971





RIVER BASIN	STARTED	COMPLETED
Assabet		1968
Charles		August 1971
Connecticut River Lowland	August 1971	
Deerfield—Hoosic		1971
Housatonic		1968
Millers		1969
Nashua	FY 1970	
N.E.Coastal	FY 1970	
Neponset—Weymouth		1970
S.E. Coastal	FY 1969	
Taunton		1969

## GROUNDWATER FAVORABILITY STUDIES

Figure 3



## ANNUAL REPORT

### DIVISION OF ACQUISITION & CONSTRUCTION

Commissioner Brownell awarded thirty four construction contracts, representing approximately \$2 million, during the 1971 Fiscal Year.

To continue the Department's road maintenance program, twelve contracts were awarded totaling over \$200,000.

In the fall of 1970, ground breaking ceremonies were conducted at Wompatuck State Park where the Commissioner had awarded the Department's largest single contract for the construction of twelve buildings. Included in the \$1 million contract is the construction of a visitor's center which will allow the Department to offer conservation programs. Also included is the contact station and nine comfort stations to service 450 camp sites to be constructed under another contract. The contractor at Wompatuck State Park is J. A. Singarella, Dorchester, who is expected to be completed in the fall of 1971.

The initial construction of another camping area has begun at the Horseneck Beach Reservation. Commissioner Brownell awarded a contract to J. Edwards Construction Company, 2409 East Main Road, Portsmouth, Rhode Island, for the construction of a comfort station to service 100 camping sites.

Included in the "things to come" catagory and expected to be advertised during the summer and fall of 1971 are:

Wompatuck State Park - the site development including all utilities, reconstruction of existing roads and construction of new roads, estimated at \$2.3 million.



Mt. Greylock State Reservation - the construction of a visitor's center and an administration buildings at the southern end of the reservation, estimated at \$575,000.

Mt. Wachusett State Reservation - (a) the reconstruction of roads leading to the summit from the West Access (Mountain Road), estimated at \$540,000. (b) the construction of an administration building and several other small buildings, all to be located at the West Access, estimated at \$300,000.

Otis Reservoir - the construction of a new road, estimated at \$540,000.

Myles Standish State Forest - (a) the construction of eight comfort stations at Charge Pond for a camping area, estimated at \$500,000. (b) the construction of new road and utilities at Charge Pond, estimated at \$500,000.

Horseneck Beach State Reservation - the construction of roads and utilities for a camping area, estimated at \$350,000.

Nickerson State Forest Park & Shawme-Crowell State Forest - The construction of two shower houses and a trailer waste station at Nickerson and of one shower house and a trailer waste station at Shawme-Crowell, estimated at \$400,000.

Massasoit State Park - construction of dam, to impound 250 Acre lake, and beach, estimated at \$1 million.





DIVISION OF ACQUISITION & CONSTRUCTION  
CONSTRUCTION

FISCAL YEAR 1971

2 of 3 pages

AREA	PROJECT	ACCOUNT	COST
Mt. Greylock, October Mtn., Tolland St. For. Adams, Lee, Otis	Rehabilitation of Heating 639-71	1030-9030	\$8,600.00
Myles Standish State Forest South Carver	Two Wells 640-70	1030-9030	\$10,420.00
Nickerson State Forest Park Brewster	Two Wells 634-70	1030-9030	\$17,123.00
October Mtn. State Forest Lee	Paving Roads 648-71	1011-9006-12	\$7,818.50
Otis Reservoir Otis	Navigational Improvement 635-70	1030-9026	\$4,775.00
Rutland State Park Rutland	Water System 643-70	1011-0002-12	\$5,777.00
Salisbury Beach State Reservation Salisbury	Water System 658-71	1017-2501-12	\$4,700.00
Salisbury Beach State Reservation Salisbury	Paving of Roads 662-71	1017-2501-12	\$11,000.00
Salisbury Beach State Reservation Salisbury	Pavement Striping 665-71	1017-2501-12	\$1,000.00
Salisbury Beach State Reservation Salisbury	Comfort Station Repairs 668-71	1017-2501-12	\$8,486.00
Savoy Mt. State Forest Florida	Resurfacing of Parking Areas 599-70	1011-9006-12	\$22,242.50
Scusset Beach State Reservation	Rehabilitation of Facilities	1017-1502-12	\$5,637.00





# DIVISION OF ACQUISITION & CONSTRUCTION

## CONSTRUCTION

FISCAL YEAR 1971

3 of 3 pages

AREA	PROJECT	ACCOUNT	COST
Scusset Beach State Reservation Bourne	Installation of Timber Piles 666-71	1017-1502-12 1030-9030	\$1,863.00 \$3,087.00
Upton State Forest	Paving of Roads	1011-9006-12	\$3,912.50
Warwick State Forest Warwick	Road Construction 656-71	1030-9030	\$245,925.50
Wells State Park Sturbridge	Paving of Roads 667-71	1011-9006-12	\$7,600.00
Wendell State Forest Wendell	Paving of Roads 646-71	1011-9006-12	\$12,390.00
Willard Brook State Forest West Townsend	Paving of Roads 644-71	1011-9006-12	\$11,940.00
Wompatuck State Park Hingham	Recreational Buildings 630-70	1030-9015 1011-9020	\$973,000.00
Salisbury Beach State Reservation Salisbury	Access to Black Rock Creek 673-71	1000-1491-12	\$39,000.00
Wells State Park Sturbridge	Access to Walker Pond 672-71	1000-1491-12	\$35,000.00





DIVISION OF ACQUISITION & CONSTRUCTION

ACQUISITIONS

FISCAL YEAR 1971

JULY 1, 1970 - JUNE 30, 1971

LOCATION	AREA	GRANTOR	DATE REC.	ACREAGE	COST
Chesterfield	Chesterfield St. For.	Est. of Hugh MachLeod	9-18-70	1 acre	\$3,500.00
Goshen	D. A. R. State Forest	Bishop of Springfield	3-16-71	7 acres	Exchange
Great Barrington	Beartown State Forest	Arthur D. Yerkes	9-21-70	30 acres	Exchange
Great Barrington	Beartown State Forest	Am. Tel. & Tel. Company	11-23-70	70.11 acres	Exchange
Harwich	Hawksnest State Park	Robert E. Culver	4-26-71	1.06 acres	\$2,000.00
Harwich (Taking)	Hawksnest State Park	K. W. Thompson	12-14-70	195.5 acres	\$255,000.00
Harwich	Hawksnest State Park	Mable B. Colburn (½ inter)	5-19-71	23.34 acres	\$50,000.00
Harwich (Taking)	Hawksnest State Park	Lewis S. Bell (½ interest)	5-19-71		\$50,000.00 (plus)
Lanesborough	Balance Rock St. Park	Alfred A. Zurrin Et. Ux	1-11-71	18.25 acres	\$13,050.00
Princeton	Mt. Wachusett St. Res.	Jeanett H. Sullivan	7-21-70	30 acres	\$2,500.00
Taunton	Massasoit State Park	Robert E. Culver	1-6-71	36,000 sq. ft.	Exchange
Taunton	Massasoit State Park	Robert E. Culver	3-3-71	2.92 acres	Exchange
Wendell	Wendell State Forest	W. D. Cows Inc.	7-31-70	82 acres	Exchange
Westfield	Hampton Ponds St. Park	Rita Lambert Pezzini	1-12-71	0.5 acres	\$15,000.00
Westport	Horseneck St Beach Res.	Kalil S. Kalil	1-11-71	20.075 sq. ft.	\$16,000.00
Westport	Horseneck St Beach Res.	Robert E. Culver	2-5-71	{ 65,150 sq. ft. (5 parcels)	Exchange
Westport	Horseneck St Beach Res.	George Hanna	3-30-71		\$37,000.00
Williamstown	Clarksburg State Forest	Sarah T. Tenney	8-20-70	213.7 acres	\$14,680.00



1971 ANNUAL REPORT

Planning and Research Section

Matthew B. Connolly, Jr.  
Assistant to the Commissioner



## INTRODUCTION

Fiscal 1971 was the first year of existence for the Planning and Research section. Two planning units -- Park Planning, formerly under the Division of Acquisition and Construction, and the Statewide Outdoor Recreation Planning Office, formerly under the Division of Conservation Services -- were logically consolidated into the Planning and Research section.

Evans Hawes, who moved from Conservation Services to Administration, first headed the section. When Evans was promoted to Executive Assistant to the Commissioner, Matthew B. Connolly, Jr., former Chief Planner, was appointed Assistant to the Commissioner for Planning and Research.

At the end of the year the Park Planning unit underwent reorganization. This unit was divided into three operations -- planning, graphics and historical and natural research. To assist the Planning and Research Section, as well as other divisions in the DNR, a professional writing staff was also formed.

The primary purpose of the planning reorganization was to improve coordination between the two units, both of which are engaged in studying and planning for the state's recreational needs. It was also felt that reorganization and expansion of this section would facilitate communications both within and outside the DNR. In particular the combined efforts of the graphics and writing staffs should help explain the plans, disseminate environmental information and describe to the general public the vital role DNR plays in protecting the state's natural resources.





MAJOR ACTIVITIES OF PLANNING AND RESEARCH FOR FISCAL 1971

The Statewide Outdoor Planning Office:

The major task of the Statewide Outdoor Planning Office is the preparation of a statewide comprehensive outdoor recreation plan (SCORP). Essentially SCORP incorporates two aspects: an inventory of existing recreational lands and an evaluation of recreational needs throughout the state. To be eligible for Federal assistance from the U. S. Bureau of Outdoor Recreation, Land and Conservation Fund, the state is required to prepare such a comprehensive outdoor recreational plan. SCORP's ultimate purpose, however, is to provide the state with a program for meeting the burgeoning outdoor recreational needs of its citizens in the years ahead.

Because of the enormous task of compiling recreational information, it was realized that computerization of the data would be necessary. The state Department of Education made available to DNR the use of its computer center at Woburn. And through DOE's training programs at the Norfolk and Framingham correctional institutions, DNR was assisted in computer programming and data card preparation.

As a result of this assistance the Statewide Planning Office completed a first draft listing all outdoor recreation sites. Data was reported by federal, state, municipal, private, and semi-public ownership categories. Some 5200 recreational sites comprising about 957,000 acres were found to exist in the state. In addition the Statewide Planning Office made considerable progress in completing the draft report on Eastern Massachusetts, the largest study region



in SCORP, covering 30% of the land, 67% of the population, and 152 towns and cities of the Commonwealth.

To comprehend the entire pattern of leisure time activities throughout the state, the Planning Office instituted a program of controlled interviews. Through DNR personnel at state parks, forests and beaches, interviews were conducted to determine outdoor recreation activities and desires of campers and day users. Another survey, conducted for the Planning Office by the Harvard-MIT Joint Center for Urban Studies, provided invaluable information on recreational patterns of Boston area residents.

An important corollary project of SCORP was the Charles River Outdoor Recreation and Environmental Conservation Study. The Planning Office, under the aegis of the U. S. Army Corps of Engineers, prepared a report on the recreational potential and conservation aspects of the Charles River Valley. This report was presented by Commissioner Brownell at a public meeting attended by 300 people on May 13, 1971 at the Dale Street Elementary School in Medfield. Proceeding in two stages the report called for both private and public action to preserve some 22,000 acres of land for outdoor recreation and environmental conservation. Fulfillment of this plan would create a continuous corridor of protected land along the Charles River from Boston Harbor to Echo Lake in Milford and Hopkinton.

#### Park Planning:

Park Planning's major activities included the study of lands either under DNR ownership or under consideration for purchase, the





determination of their land-use capabilities, and the preparation of recreation-conservation master plans. In collaboration with the Division of Forests and Parks, Park Planning prepared plans and brochures for the following public information presentations:

Fiske-Hall property -- Framingham  
Wompatuck State Park -- Hingham  
Hawksnest Pond -- Harwich  
Lowell-Dracut State Forest -- Lowell  
Nashoba Site -- Westford and Littleton  
Rice City Pond -- Uxbridge and Northbridge  
Red Bridge -- Ludlow  
Merrimack River -- West Newbury

(A comprehensive list of the Bureau of Park Planning projects is attached to this report.)

Graphics, Research and Writing units:

Besides assisting in the preparation of public hearing brochures and other DNR publications, the graphics unit also prepared several exhibition displays. Among these were the wetlands dioramas displayed at various shopping centers and wetland hearings; the DNR exhibit displayed at the sportsmen shows; a coho salmon exhibit for the Division of Marine Fisheries; and an award-winning exhibit entitled "History of Man's Use of Plants", shown at the Spring Flower Show.

The History and Natural Research unit completed 13 studies, including reports on Lowell-Dracut, Oakes-Ames, Barton's Cove and Grassy Hill, Acushnet Cedar Swamp, and Moore Memorial State Park. Of particular interest was research relating the archeological importance of the dinosaur fossil quarry at Barton's Cove to the discovery of the prehistoric presence of dinosaurs in North America;



and the inventorying of Acushnet Cedar Swamp's distinctive vegetation which was influential in the establishment of this unique environment as a national natural landmark.

The newly formed writing staff, called the Communications and Information unit, prepared brochures for public information hearings. The unit also prepared the first DNR informational publications. Among these were a DNR brochure which explains the functions and responsibility of various divisions; Massachusetts' Coastal Wetlands; 1970 Annual Report; and in conjunction with the Division of Marine Fisheries, the Northwest Atlantic Fisheries Crisis, for the Commissioner's presentation at the New England Governor's Conference. Several articles related to DNR activities were also written. Among these were a supplement in Boston After Dark entitled "Camping and Backpacking in Massachusetts", and a parks feature in Commerce Digest. Plans for the immediate future include a 1971 DNR yearbook, a newsletter and several environmental brochures.

#### OTHER ACTIVITIES OF PLANNING AND RESEARCH FOR FISCAL YEAR 1971

Planning and Research's primary function is to coordinate both on an intra-agency as well as an inter-agency basis (municipal, state, and federal) all planning and research in the DNR. Besides the major projects, the section was involved in a number of other programs and activities.

The Planners prepared all BOR Land and Water Fund applications





submitted by the DNR. In fiscal 1971 those projects submitted and approved included:

	<u>Total Cost</u>	<u>Federal Reimbursement</u>
The Boston Harbor Island Study**	\$155,000	\$77,750
Horseneck Beach Development*****	\$611,000	\$305,500
The 1800-acre Acushnet Cedar Swamp Acquisition*****	\$350,000	\$175,000

Planning and Research, which reviews all Office of Planning and Program Coordination clearinghouse applications for environmental considerations, reviewed 325 OPPC applications last year. In addition a team of planners critically reviewed environmental impact statements prepared by other agencies and private organizations. The same team also prepared an assessment of the environmental implications of major state and federal projects affecting our resources. Within the DNR the Planners coordinated all divisional reviews.

Requests are continually being received for municipal planning assistance in the open space and outdoor recreation field. Last year projects were instituted in Boston, Brookline and Canton. Planning personnel also served on the state environmental education committee. In this capacity, members of park planning gave a good deal of guidance and assistance to the city of Lowell in their Title III Environmental Education Program and the model school project.

Currently the Planning staff, in conjunction with the Department of Mental Health, is studying DMH's land use capabilities relative to outdoor recreation and conservation. Members of the staff are also working closely with MIPC on the Boston Harbor Island Study.





Planning personnel continue to be called upon to present slide demonstrations, talks and lectures on natural resource issues to such diverse groups as church organizations, schools and legislative committees.

### Personnel

The personnel changes undertaken in fiscal 1971 should provide DNR with a competent planning and creative arm in the years ahead. Matthew Connolly, Jr. was appointed Assistant to the Commissioner for Planning and Research. Albert Pratt, a former Park Planner in Pennsylvania and California succeeded Connolly as Chief Planner. David Kales, formerly of Newsweek magazine, was selected to head the newly formed Communications and Information unit. Richard Floyd was appointed Assistant Chief Planner. Miss Lorraine Agri was promoted to graphics supervisor. Leon Aldrich has become Administrative Assistant. Departing from the Planning unit were Dr. Theodore Mathieu, for health reasons, and John Grabosky for the private sector.

### Summary

As is taking place throughout other divisions in DNR, Planning and Research's role and responsibilities are continually growing. In just a short time, the section has evolved from two fragmented and isolated planning groups to a cohesive unit totalling some twenty professionals contending with a myriad of problems ranging from questions asked by school children to decisions involving the expenditure of millions of dollars. In this short time too, Planning and Research



has been able to improve both the coordination among the various divisions within DNR as well as communications to the outside regarding the essential role DNR plays in protecting the state's natural resources. We realize these achievements in Fiscal 1971 are only a beginning of the tasks to be accomplished in the years ahead.





CURRENT STAFFING

Planning and Research Section

Matthew B. Connolly, Jr.  
Assistant to the Commissioner  
Planning and Research

Bureau of Park Planning

Chief Planner: Albert Pratt  
Asst. Chief: Richard Floyd  
Admin. Asst.: Leon Aldrich  
Associate Planner: Leonard Phillips  
Principle Planner: Sandra Speer  
Principle Planner: Terry Walker  
Natural and Cultural  
Investigator : John Richardson  
Graphics Supervisor: Lorraine Agri  
Land-Use Draftsman: James Stamatelos  
Land-Use Draftsman: Joseph Ulatowski

Bureau State-Wide Planning

Chief Planner: John Blackwell  
Asst. Chief: Charles Repetta  
Associate Planner: Linda Morrissey  
Senior Planner: Barbra Woods  
Junior Planner: Miriam Phillips

Bureau of Communications and Information

Chief: David Kales  
Editorialist: Elizabeth Hicks



BUREAU OF PARK PLANNING

Fiscal Year 1971

Projects

Land-Use Plans

Facility

Town

1. Wompatuck State Park	Cohasset
2. Bradley Palmer State Park	Topsfield
3. Whitehall State Park	Hopkinton
4. Upton State Forest	Upton
5. A.B.M. Site	North Andover
6. Scusset Beach State Reservation	Sandwich
7. Ashland State Park	Ashland
8. West Branch of Westfield River	Huntington
9. Robinson State Park	Agawam
10. Moore Memorial State Park	Rutland
11. Barton's Cove Proposal	Gill
12. Grassy Hill Proposal	Gill
13. Oakes-Ames Estate Proposal	Easton
14. Hawksnest Acquisition	Harwich
15. Red Bridge Proposal	Ludlow
16. Rice City Pond Proposal	Uxbridge
17. Lowell-Dracut State Forest	Lowell
18. Conservation Education Camp Proposal	Worcester County
19. Merrimack River Proposal	West Newbury
20. Hingham Naval Ammo Depot	Hingham
21. Nashoba Proposal	Westford, Littleton
22. Horseneck Beach State Reservation Campground	Westport



BUREAU OF PARK PLANNING

-2-

Special Studies or Reports

1. Statewide Inventory Open Space Maps
2. Boston Harbor Island Study
3. Ski Potential/Wachusett Mountain State Reservation
4. Mount Tom Land Exchange/County Commissioners
5. Draper Farm - Canton
6. Boston Open Space Study
7. Boston, Brookline Olmstead Park Proposal
8. City of Lowell Title III Environmental Education
9. Freetown - Fall River State Forest Study
10. Fort Taber - Fort Rodman Study
11. The History of the Paleontological Discoveries of Barton's Cove/Gill





PUBLIC ACCESS BOARD

Arthur W. Brownell, Commissioner of Natural Resources  
Chairman

John W. Sears, Commissioner, M.D.C.

Edward J. Ribbs, Commissioner of Public Works

James M. Shepard, Director of Fisheries and Game

Thomas J. Legere, Director of Motorboats

John Freeman, Secretary



## I - GENERAL

1971 marked the ninth year of activity for the Public Access Board. Although the State Agencies comprising the Board, as defined by law, remain the same and there has been no recent change in the Commissioner or Director status of those agencies, the designees of the principals did undergo quite a change during the fiscal year.

Commissioner Arthur W. Brownell, Department of Natural Resources, is by statute, the designated chairman. At the start of the year Stephen Ells was chairman designee. When Mr. Ells left the Department for legislative duties at the State House, Evans C. Hawes, Executive Assistant to the Commissioner, was designated by Commissioner Brownell to be chairman.

The Director of the Division of Fisheries and Game, James M. Shepard is a member of the board. For many years his designee was Russell Cookingham. However, during the fiscal year Mr. Cookingham severed his connection with the Commonwealth and assumed leadership duties in the Fisheries and Game Department of the state of New Jersey. Director Shepard designated as his replacement Mr. Lewis C. Schlotterbeck.

The Director of the Division of Motorboats, (now the Division of Marine and Recreational Vehicles) Thomas J. Legere, has designated Alfred Nataloni as his designee. Mr. Nataloni replaces George F. McInerny who represented that Division since the inception of the Public Access Board.





Commissioner Edward J. Ribbs, Department of Public Works, is, by statute, a board member. Mr. Edward Chase, Division of Waterways, represents Commissioner Ribbs at Board meetings. Assistant to Mr. Chase, Eugene Cavanaugh, Engineer for the Division of Waterways is present at Board meetings and an active participant during field trips.

The Commissioner of the Metropolitan District Commission, John Sears, was represented at the beginning of the fiscal year by Max Straw. The unfortunate and untimely passing away of Mr. Straw was indeed a blow to the Public Access Board. Mr. Thomas Lynch now represents the M.D.C.

Mr. John Freeman, Civil Engineer with the Department of Natural Resources, has served the entire fiscal year as secretary of the Board.

With certain new faces acting as designees on the Public Access Board it became apparent that much of the history must be researched and members brought up to date. Fortunately, each of the incumbents with the exception of Mr. Lynch has been able to fall back on his predecessor for this training and for guidance. Throughout the year a series of field trips were arranged both to see existing sites and to discuss on the ground possibilities for future Public Access sites.

At least one formal meeting was held each month and the attendance of board members at these meetings was very creditable. On several occasions sponsors of proposals for access sites were authorized to attend board meetings for the purpose of further explaining their proposal.



## II - MAINTENANCE

It appears that the maintenance of Public Access sites is becoming an ever increasing problem for both state agencies and local agencies. Many of the local communities are agreeable to maintaining the site to the extent it involves collection of trash and minor maintenance. This is a situation close to the ideal, but there remain other access sites within the communities and on land acquired through Public Access funds where the town divorces itself of all responsibilities. In these instances the Division of Forests and Parks within the Department of Natural Resources or the Division of Fisheries and Game have assumed responsibilities for the regular and routine clean-up. On those lands within state parks and state forests or within wildlife management areas, it is routine for Forest and Park personnel and Fisheries and Game personnel to assume clean-up responsibilities.

The problem of site maintenance other than the normal routine clean-up becomes increasingly severe and more costly. It is fortunate that early Public Access sites and those of today were and are constructed with sound engineering principles in mind, and of material designed to last for extended periods. Regardless; winter weather, use, and abuse have made it necessary to instigate rather costly repairs in some instances. For the most part, fishermen and other boaters are considerate individuals and their use has been in keeping with the main intent of a fisherman landing or a more elaborate boat launching area. Not all non-conforming users





are problem people, but the small percentage of the unappreciative have caused the larger percentage of the problems.

The Board is faced with a mandate from the Department of Public Health to provide sanitary facilities at one of the Public Access sites. This site, on Long Pond in Free-town, is at an area where the waters are designated as reserve waters in the public water supply system. At the year's end, contacts had been made relative to providing the sanitary facilities. It is anticipated situations similar to this, and not necessarily limited to public water supply points, are going to be more and more a matter of concern to the Board.





## COOPERATIVE EFFORT - PROBLEM AREAS

The inter-play between the five State Agencies involved in the Public Access Program has been excellent. Special thanks is extended to the Division of Forests and Parks for the cooperation displayed by its Bureau of Recreation, its Regional Forest and Park Supervisors, and its field men. The Board is equally appreciative of the knowledge and wisdom and the cooperation evidenced by the Division of Marine Fisheries and the Division of Fisheries and Game.

Conservation commissions, sportsmen's organizations and certain of the news media have been instrumental in building good will and informing the public of the nature and extent of the program as well as putting certain events in their proper perspective.

Contributions by the Division of Motorboats, Metropolitan District Commission, Department of Natural Resources and the Division of Fisheries and Game have led to some fine site selections. Untiring efforts of the Department of Public Works have led to sound design and construction activity.

Yet in spite of all the professional expertise, cooperative effort, and yeoman's service, not all was smooth during 1971. An adverse opinion in judicial chambers unceremoniously suspended work in progress at Great Herring Pond, Bourne and necessitated a modification of intent at Robbins Pond, East Bridgewater and Lake Winnekeag, Ashburnham. The lessons to be learned from this and other events were three-fold.



A. - Filling in any portion of a Great Pond for Public Access purposes is not, in all instances, favored as "in the public interest." B. - Great care and planning need be exercised prior to any land acquisition to forestall, hopefully, acquiring land not completely adequate for public access purposes. C. - A series of back-up projects should be designed and ready for bid procedure in the event of an unforeseen happening leading to delay or redesign of a project on the priority list.

One unforeseen event which disrupted priorities and forced postponement beyond fiscal 1971 occurred at the proposed Charlestown site owned by the Boston Redevelopment Authority. This site had long since been approved by the Public Access Board and preliminary designs were prepared by the Department of Public Works early in the year. A series of delays occurred when certain changes were suggested by BRA and accepted by the Board. The postponement occurred when certain maintenance agreements involving responsibilities between the BRA and the City of Boston Recreation Department failed to materialize. (Actually agreement between all concerned parties had been effected in the past, but no record was found and a new slate of officials currently are empowered to act, both at the Boston Redevelopment Authority and at the Recreation Department of the City of Boston.) Late in the year, and with the assistance of certain Board representation, the matter was resolved to the





apparent satisfaction of those most intimately concerned. Since this project is a large one in terms of cost, removing its priority from 1971 funding and scheduling for 1972 funding created a problem--and lends emphasis to Point C in aforementioned "lessons to be learned."



## THE PUBLIC ACCESS BOARD

### - WATER ORIENTED -

The 1969 Annual Report of the Public Access Board carried in it a "Fact Sheet" designed to inform readers of the purposes, programs and responsibilities of the Board. It is deemed appropriate in this, the 1971 report, to repeat or update certain elements contained in that fact sheet section.

#### What is the Public Access Board?

General Laws, Chapter 21, Section 17 and 17A, as amended established within the Department of Natural Resources a Public Access Board consisting of the Commissioner of Natural Resources as Chairman, the Commissioner of Public Works, the Commissioner of the Metropolitan District Commission, the Director of the Division of Fisheries and Game, and the Director of the Division of Motorboats.

#### What are its duties?

The Board's principal function is to consider and then designate points of access for construction purposes to the waters of the Commonwealth. Once these points have been designated, the Department of Public Works then becomes the contracting agent of the Board for construction of the access points and their related facilities.

#### How is this program financed?

The law also provides for the establishment of a Public



Access Fund which receives a portion of the fuel excise attributable to the operation of watercraft. These funds can only be expended for the purpose of providing public access and related facilities. However it is legislation action that determines year to year how much of that Fund shall be appropriated.

What procedures does the Board employ in designating an Access point?

Recommendations are received as to where a point of access should be established. The Board usually depends upon its member agencies for a list of recommended sites, but suggestions are welcomed from any source.

The recommendations are referred to a Technical Advisory Committee of the Board for field inspection and report. Based on the desirability of the site, the needs of the public, the estimates of engineering feasibility and the cost, the site proposal is presented to the full Board for consideration of preliminary designation status. Once this preliminary designation is made, a survey and design, and a detailed analysis of construction costs is made.

Is there any opportunity for the public to be heard?

If the project is determined to be feasible, it is the policy of the Board to contact legislators and officials of the municipality concerned for their comments. Under certain conditions a public hearing is conducted.





If, in the Board's judgement, circumstances are sufficient to warrant construction of a point of access, final designation is made and the Department of Public Works is authorized to prepare plans and specifications for actual construction.

Suppose private launching area or other facilities are already available?

It is the intent of the Board to limit construction to ramps, parking areas and approach roads only. These sites are not to be developed as marinas, nor are there attendant recreation or concession facilities provided by the Board. This state program should not discourage municipalities from providing such facilities on their own, nor is it the intent to compete with private enterprise.

What about the access point after it is constructed?

The Board believes that it also bears a measure of responsibility to consider the later use of a point of public access, and through the authority of its member agencies, the Board considers rules and regulations for the safe use of the area by boating enthusiasts, and considers suitable enforcement of any regulation promulgated by the Division of Marine and Recreational Vehicles.

What provisions are made for operation and maintenance?

Major maintenance expenses of an access facility normally are borne by the Board, however, minor maintenance and day-to-day operation require the use of local personnel.



The Board does not have a staff for this purpose, relying on its member agencies or the municipality for help when necessary. Consequently, the Board will look with favor on locations where provisions can be made for local operation and maintenance or where the site is owned by the Commonwealth or a political subdivision.

Who can use such sites?

Any sites constructed by the Public Access Board must be open to the public on equal terms.

How many sites are developed each year?

The level of funds presently available enables the acquisition of approximately ten sites and the development of access facilities at ten major locations each year. This may vary according to availability of funds and costs of acquisition and development.

The Board currently conducts its business through the office of the Secretary, who can be reached as follows:

Secretary  
Public Access Board  
Department of Natural Resources  
100 Cambridge Street  
Boston, Massachusetts 02202





LEGISLATIVE CHANGES AFFECT THE  
PUBLIC ACCESS BOARD

Chapter 589, Acts of 1970 "An act Regulating the Use of Certain Snow Travelling Vehicles and Certain Recreation Vehicles Requiring the Registration of Said Vehicles" created a new direction for the Public Access Board. The Board is now concerned with recreation vehicles and land areas as well as boats and water areas.

Sections Three and Four of Chapter 589, Acts of 1970 are of particular interest to Public Access and are reproduced below.

Section 3 - Public Access Fund

Chapter 21 of the General Laws is hereby amended by striking out section 17 and 17A and inserting in place thereof the following two sections:-

Public Access Board

Section 17. There is hereby established a fund to be known as the Public Access Fund to which shall be credited such sums as shall be determined under the provisions of section thirteen of chapter sixty-four A and section thirty-five of chapter ninety B. Said fund may be expended, subject to appropriation, only for the purposes authorized in the following section.

Section 17A. There shall be in the department a board known as the public access board, composed of the commissioner of the department of natural resources, who shall be designated chairman, the director of the division of fisheries and game, the director of the division of motorboats, the commissioner of public works and the commissioner of the metropolitan district commission, or their designees. The board shall meet at the call of the chairman and shall by majority vote designate locations of public access to great ponds and other waters within the common-



wealth and locations of trails and paths for snowmobiling, hiking, skiing or other uses. The department shall, after receiving written notice of such designation, acquire by purchase, gift, or lease or, with the consent of the governor, by eminent domain such land and water areas, or interests and easements therein, which have been designated by said board for the purpose of providing such public access, trails and related facilities, or it may utilize public lands with the consent of the department or other public agency in charge thereof. The department may construct such roads, parking areas, docks, ramps, trails, shelter, comfort stations and related facilities as may be designated by said board and shall maintain, operate and improve such facilities and associated land and water areas, provided the department shall designate the department of public works as its contracting agent for the design and construction of public accesses to water; and provided, further, that the department may enter into agreements with other public agencies to transfer operation of such areas to said agency. The department may adopt, after public hearing, regulations governing the use of land and water areas under this section, violation of which may be punished by a fine of not more than one hundred dollars and which may be enforced by any employee of the commonwealth, or of a city or town, having police powers. The cost of such acquisition, construction, maintenance, operation and improvement, and the administrative and other expenses, including planning, incurred by the department in connection with the activities authorized by this section shall be chargeable to the Public Access Fund. The board may purchase from sums appropriated from the Public Access Fund snowmobile and other safety, rescue and patrol equipment appropriate for winter use, and may transfer the same to agencies of the commonwealth having responsibilities for law enforcement or management of public funds.

#### Section 4

This act shall take effect on November the first, nineteen hundred and seventy.





THE PUBLIC ACCESS BOARD

- LAND BASED -

The Public Access Board is now in the land based outdoor recreation field. We are currently concerned with the locations of trails and paths for snowmobiling, hiking, skiing or other uses.

Fiscal year 1971 saw Chapter 589, Acts of 1970 enacted into law. However the funding authorized under this act did not materialize as a functionally available source with which the Board could act. Consequently, considerations by the Board were limited to discussions involving future cooperative measures and directions of movement. It is apparent that land masses controlled by the Department of Natural Resources, Metropolitan District Commission and the Division of Fisheries and Game will be considered in depth. It is equally apparent that the Division of Marine and Recreational Vehicles (formerly the Division of Motorboats) will be extremely active with safety factors, rules and regulations, enforcement procedures etc.

Thus 1971 was the year that trails and recreation vehicles became a Public Access consideration, but was not a year in which any tangible progress in this regard could be recorded.





## PUBLIC ACCESS PROGRAMS STUDIED

During the past year the Office of Planning and Program Coordination, through its Modernization Systems Unit, made an in-depth study of the activities of the Public Access Board since its inception. This study, one of a relatively few conducted of its type, was a pilot study correlated with the reorganization of State Government and attempted to identify "programs" with relation to costs and benefits. The report is replete with statistics and offers its readers a rather comprehensive insight into the Public Access program.

Mr. John A. Kessler, Jr., Management Specialist with the Modernization Systems Unit was instrumental in devising the format which, if applicable, may be useful in "identifying" other programs and helpful in future budget considerations. In this study Mr. Kessler worked closely with Stephen F. Ells, then Deputy Commissioner of Natural Resources and John Freeman Secretary to the Public Access Board.

Although this particular study is identified in total with Public Access matters, it was not specifically designed for that purpose. It was assumed that activities of the Board would lend themselves to a methodology study and could be adapted to the trial and error procedures so necessary in arriving at functional methodology. The end product is of quite some value to the Public Access Board and trials and tribulations of arriving at the end product should be beneficial when other unrelated "programs" are identified and studied.



## A C C O M P L I S H M E N T S

At the end of the 1971 fiscal year the Public Access Board had accomplished the following:





## BARNSTABLE, PLYMOUTH, NORFOLK,

## NANTUCKET &amp; DUKES COUNTIES

Site & Completion Date	Land Ownership, cost and Acreage	Pond Acres	# Pkg. spaces	Construction Costs
Fairhaven, Sconticut Neck 5/5/64	Town	ocean	40	\$12,129
Westport, Westport River 5/1/64 Comfort Station	Town	ocean	35	\$12,238
Swansea, Coles River 6/15/65	Town	ocean	35	\$22,840
Truro, Pamet River 6/16/65	Town	ocean	38	\$13,185
Falmouth, Green Harbor 6/18/65	Town	ocean	18	\$20,353
Weymouth, Back River 6/6/65	Town	ocean	22	\$17,832
Taunton, Sabbatia Lake 10/21/66	DNR-\$9,500 for 1.9 acres	237	17	\$20,189
Eastham, Rock Harbor	Town	ocean	55	\$34,771
Plymouth, Long Pond and Little Pond 6/28/67 Comfort Station	DNR \$22,000 for 1.7 acres	215 45	29	\$22,677
Marshfield, Green Harbor River 8/26/66 11/29/67	Town	ocean	38 63	\$15,731 \$60,681
Tisbury, Lagoon Pond 7/10/67	Town	ocean	24	\$43,287



Site & Completion Date	Land Ownership, cost and Acreage	Pond Acres	# Pkg. spaces	Construction Costs
Fairhaven, Pease Park 4/24/68	Town	ocean	30	\$32,597
Mashpee, Mashpee- Wakeby Pond 5/7/68 Comfort Station	Fish and Game	729 S	44	\$27,267
Fall River, South Watuppa Pond 7/1/68	\$3,000 for 1.26 acres = \$2,381/acre	1,783 F	59	\$63,820
Edgartown, Katama Bay	Town	ocean	27	\$50,144
Falmouth, Ashumet Pond 4/25/69	Fish and Game	203 S	28	\$19,888
Yarmouth, Bass River Beach	Town	ocean	72	\$58,506
Scituate, Jericho Rd.	Town	ocean	62	\$60,663
Dennis, Sesuit Harbor (East side) 9/18/69	Town	ocean	80	\$63,400
Bridgewater, Lake Nippenicket 9/18/69	\$17,500 for 1.8 acres = \$9,722/acre	368	28	\$48,893
Mashpee, Johns Pond 5/2/70	\$14,000 for 0.5 acres = \$28,000/acre	243	12	\$31,927
Breetown, Long Pond 8/70	\$2,200 force account \$2,900 for .37 acres = \$7,838/acre	381	47	\$86,160



FORCE ACCOUNT AND OTHER

Site & Completion Date	Land Ownership, cost and Acreage	Pond Acres	# Pkg. spaces	Construction Costs
Brewster, Cliff Pond and Little Cliff Pond Force Account to pave road	State	193 33 F	not specified	\$8,500 est.
Mattapoisett, Short Wharf-Wharf repairs, contribution to Town project	Town	ocean	----	\$5,306
Barnstable, Shubael Pond Land Acquisi- tion-Existing Flooded Road	\$7,500	29	26	0
Harwich, Saquetucket Harbor \$ contributed to large town project	Town	ocean	86	\$60,00





ESSEX & MIDDLESEX COUNTIES

Site & Completion Date	Land Ownership, cost and Acreage	Pond Acres	# Pkg. spaces	Construction Costs
Lynn-Nahant, Lynn Harbor 4/24/65	M.D.C.	ocean	37	\$21,773
Salisbury, Salisbury Beach 7/9/64	State	ocean	46	\$22,571
Lawrence, Merrimac River 9/22/66	Town	R	54	\$37,075
Brighton, Charles River 12/13/66	M.D.C.	R	80	\$40,521
Hopkinton, Whitehall Reservoir 8/6/67	State	601 S	30	\$19,774
Woburn, Horn Pond RESTRICTED? 5/27/68	Town	102 S	34	\$36,183
Salem, Danvers River	Town	R	42	\$44,191
Ipswich, Town Wharf area	Town	ocean	25	\$58,556
Georgetown, Rock Pond	\$6,265 for 0.5 acres = 12,530/acre	57 S	10	\$22,349
Hamilton, Chebacco Lake	\$17,500 for 2.5 acres \$7,000/acre	209	17	\$33,750
Merrimac, Lake Attitash 10/14/70	\$9,500 for 6.1 acres = \$1,557/acre	360	22	\$29,946



WORCESTER COUNTY

Site & Completion Date	Land Ownership, cost and Acreage	Pond Acres	# Pkg. spaces	Construction Costs
Brookfield, Lake Quaboag 4/27/64	\$1,050 for 1.43 acres = \$734/acre	512 F	38	\$30,332
Leominster, Whalon Lake 5/29/67	\$2,100 for 0.6 acres = \$3,500/acre	100 M	9	\$16,362
Millbury, Lake Singletary	\$2,100 for 0.6 acres = \$3,500/acre	356 S	15	\$26,670
Hubbardston, Asnoconet Pond 10/5/67	M.D.C.	127 F	40	\$30,035
Sutton, Lake Manchang	\$20,000 for 15.84 acres = \$1,263/acre	366	38	\$39,811

FORCE ACCOUNT AND OTHER

Hardwick, Hardwick Pond Town Labor	County	99M	?	\$5,000
Lancaster, Fort Pond Force Account labor and Town \$	Unknown	76 S	5 approx.	0
Rutland, Ware River field - not developed	\$1,354 for 0.5 acres = \$2,708/acre	R	---	0





HAMPDEN, HAMPSHIRE & FRANKLIN COUNTIES

Site & Completion Date	Land Ownership, cost and Acreage	Pond Acres	# Pkg. spaces	Construction Costs
West Springfield, Bon- dis Island 8/20.64	City	river	56	\$37,747
Chicopee, Connecticut River 6/1/66	City	river	22	\$38,118
Gill, Bartons Cove 10/18/66	\$12,000 for 0.4 acres = \$3,000/acre	river	45	\$37,368
Southwick, Congamond Lakes 10/14/67	\$8,500 for 0.4 acres = \$21,250	465 S	18	\$15,968
Easthampton, Oxbow Manhan 9/12/68 River	\$600 for 1.2 acres= \$500/acre	river	32	\$42,167

FORCE ACCOUNT AND OTHER

Charlemont, Deerfield River Force Account	\$500 for 0.6 acres= \$833/acre	R	field	\$875
Goshen, Highland Lake Force Account Labor	State Park	108	---	0



BERKSHIRE COUNTY

Site and Completion Date	Land Ownership, cost and Acreage	Pond Acres	# Pkg. spaces	Construction Costs
Lee, Laurel Lake 10/8/65	State, DPW	151 F	20	\$27,070
Windsor, Windsor Lake 11/7/66	\$2,500 for 0.9 acres = \$2,778/acre	79 S	13	\$19,236
Otis, Otis Reservoir 10/28/66, Improved original site 5/28/68	State	693 S	(27) 24	\$16,692 \$47,224
Pittsfield, Pontoosuc Lake 9/20/68	City	480 F	30	\$32,538
Monterey, Lake Buel 1/17/70	\$4,000 for 4.9 acres = \$6,429/acre	196	23	\$47,224
Otis, Shaw Pond 1/17/70	\$4,500 for 0.7 acres = \$6,429/acre	100	10	\$32,112
Richmond, Richmond Pond 8/31/70	\$4,770 for 0.7 acres = \$6,814	219	25	\$86,997



## COMPARISON OF COMPLETION FISCAL YEARS

Completed	Site & Completion Date	Land, Ownership cost & acreage	Pond # Acres	Pkg. spaces	Construction Costs
1964	3 sites 2 ocean 1 pond	1/3 purchased \$1,050 ave \$734/acre	512 ave 512	113 ave 38	\$54,699 average \$18,233
1965	7 sites 6 ocean 1 river 0 ponds	0/7 purchased	---	252 ave 36	\$156,301 average \$22,329
1966	2 sites 1 river 1 pond	0/2 purchased	151 ave 151	52 ave 26	\$65,188 average \$32,594
1967	9.5 sites 5 ocean & river 5 ponds	6/9.5 purchased \$54,650 ave \$5901/acre	1032 ave 206	355 ave 37	\$270,600 average \$28,484 (9.5)
1968	12.5 sites 5 ocean & river 8 ponds	3/12.5 purchased \$17,765 ave. \$12,054/acre	4057 ave 507	443 ave 35	\$518,624 ave. \$41,490 (12.5) ave. \$38,162 (12)
1969	6 sites 4 ocean & river 2 ponds	1/6 purchased \$600 ave \$500/acre	683 ave 342	251 ave 42	\$263,906 average \$43,984
1970	4 sites 1 ocean 3 ponds	3/4 purchased \$35,500 ave \$12,846/acre	807 ave 269	143 ave 36	\$191,444 average \$47,861
1971	6 sites 6 ponds	6/6 purchased \$61,370 ave \$5,150/acre	1635 ave 273	159 ave 27	\$308,776 average \$51,463





The following areas were completed in 1971 fiscal year.:

<u>Town</u>	<u>Site</u>
Freetown	Long Pond
Sandwich	Peters Pond
Hatfield	Connecticut River - Force Account
Hamilton	Chebacco Lake
Merrimac	Lake Attitash
Stow	Delaney Site
Sutton	Lake Manchaug
Richmond	Richmond Pond

The following areas were under construction in fiscal 1971:

<u>Town</u>	<u>Site</u>
North Attleboro	Falls Pond
Winthrop	Winthrop Harbor

The following areas were under design in fiscal 1971:

<u>Town</u>	<u>Site</u>
East Bridgewater	Robbins Pond
Shrewsbury	Flint Pond
Wareham	Weweantic River

The following areas are available for design and construction as of July 1, 1972:

<u>Town</u>	<u>Site</u>
Winchendon	Lake Monomonoc
Charlestown	Little Mystic Channel
Barnstable	Hamblin Pond
Danvers	Porter River (tentative)
Wenham	Pleasant Pond (pending)
Marion	Weweantic River
Tewksbury	Long Pond
Hubbardston	Moosehorn Pond
Harvard	Bare Hill Pond
Monterey	Lake Garfield



# PUBLIC ACCESS ACQUISITIONS

FISCAL YEAR 1971

Location	Area	Grantor	Date Rec.	Acreage	Cost
Harvard (Taking)	Bare Hill Pond	James E. Wagner	5-5-71	1.45 acres	
Sandwich (Taking)	Peters Pond	Heirs of Henry Dimmick	11-25-70	16,300 sq. ft.	\$2,400.00
Wenham	Pleasant Pond	Trustees of Public Res.	7-15-70	0.77 acres	\$1,000.00
Wenham	Pleasant Pond	Greystone Realty Trust	10-21-70	1.5 acres	\$1,000.00





The following projects involving minor maintenances, improvements and construction of access sites to waters frequented by fishermen and boaters were authorized during the 1971 fiscal year:

<u>Town</u>	<u>Site</u>
Salisbury	Salisbury Beach S.R.
Sturbridge	Wells State Park
Lenox	Housatonic River
Monterey	Benedict Pond
Sandisfield	Upper Spectacle Pond
Ipswich	Hoods Pond
Groton	Baddacook Pond
Dracut	Mascupic Pond
Pepperell	Nissitissit River
Townsend	Squannacook River
Tyngsboro	Flint Pond
Groton	Knopps Pond
Mattapoisett	Mattapoisett Harbor
Sandwich	Spectacle Pond
Barnstable	Lovells Pond
Sturbridge	Big Alum Lake
Westville	Quinnebaug River
Westboro	Lake Chauncy





